ÅKERSTRÖMS

Trux Configuration Guide
Tx700 / Tx800

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Revision Notice

Revision	Section	Explanation
C	3.4.1 Configuration	Added reference to FreeFloat WLinq documentation.
C	5.2 Custom OS Installation	Revised section.
B	2 Installation	Added new section "Install Mounting Brackets".
B	4.2 Bluetooth	Added new section "LXE 8652 Bluetooth Ring Scanner".
C	Notices and copyrights	Updated for 2009.
C	6. FreeFloat WLinq	Added new section.

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1 Introduction and Installation

This manual covers the mounting and configuration of the Tx700 and Tx800 computers.

1.1 Who should read this manual

Use this manual if you are responsible for installing and configuring, Trux Solutions. It is assumed the reader of this document is familiar with Microsoft Windows operating systems. Manuals directed to the general user are:

- Tx700 User's Guide
- Tx800 User's Guide.

1.2 Notices

This manual describes the physical mounting and system administration functions for the Trux computer.

1.3 General Information

Like any personal computer, there are many aspects to the setup and configuration of the Trux Tx700 or Tx800. Much of the setup and configuration of the Truux computer is dependent upon the optional features (both hardware and software) installed on the computer. Since the Trux computer uses a Microsoft Windows Plug and Play operating system, much of the hardware setup is automatic. The examples found in this document are to be used as samples only; the configuration of your specific computer may vary. The following sections provide a general reference for the configuration of the Trux computer and its optional features.

Please refer to commercially available Microsoft Windows user guides or to Windows on-line Help application for more information on Windows' options for system configuration.

1.4 How to use this manual

To…	**Read Chapter…**
Prepare for installation	2 Installation
Software and configuration	3 System Configuration
802.11 radio, Bluetooth and WAN radios	4 Wireless Network Configuration
Use system recovery DVD	5 System Recovery

1.4.1 Symbols used

This manual contains these symbols, abbreviations, and terms:

Symbol	Heading	Description
	Warning	Warns about risk of damage to people or property. Always follow the instructions provided in conjunction with this symbol.
	Note	Calls your attention to problems that may arise if a measure is not taken or is taken incorrectly.

2 Installation

2.1 Personal safety

The TX700 User's Guide and the Tx800 User's Guide contain important cautions and warnings for installation and operation of the Trux computer. Please refer to the appropriate manual to review these cautions and warnings.

2.2 Product safety

2.2.1 Supplying power

Please refer to the "Electrical Installation" section for proper power supply connection. This section can be found later in this manual as well as in the Tx700 and Tx800 User's Guides.

2.2.2 Humidity, moisture, cold and heat

Make sure the operating environment is within the standards described in the Tx700 User's Guide or the Tx800 User's Guide.

2.2.3 Interference

Ensure that:

- Any nearby electrical cabling is run so that interference does not occur.
- The immediate environment meets requirements stated in the specified standards in the User's Guide regarding interference

2.2.4 Vibrations

The Trux computer should be mounted in a way that vibrations do not exceed the limits it is designed for (see Tx700 User's Guide or Tx800 User's Guide).

2.3 Typical usage

Typical usage areas for Trux computers include:

- Mounted in forklifts, operating in warehouses connected to a logistic system via a wireless network,.
- In trucks using global positioning system (GPS) navigation, routes, maps, and picking lists.
- In forestry machines using GPS-navigation, maps and felling instructions.

2.4 Connections and adapters

2.4.1 Interfaces and connections, Tx800

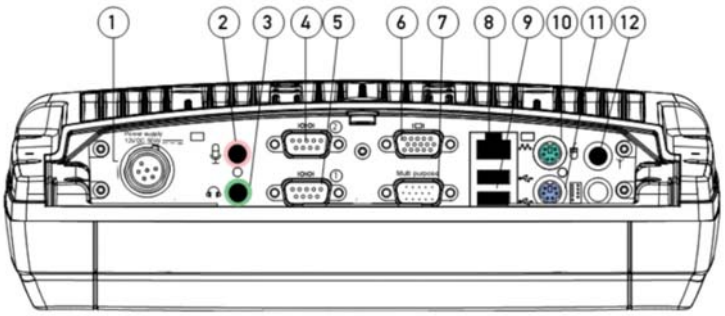


Figure 1 Overview connections and interfaces, Tx800

Connections and interfaces (port lid)

Position	Function
1	Power supply (12V DC 50W)
2	Mic. in
3	Audio out
4	COM2 RS232 +12V
5	COM1 RS232 +5V
6	VGA (external monitor)
7	Multipurpose connector (USB 2.0, RS232, +12 V)
8	RJ-45 Ethernet 10/100 (LAN)
9	2x USB 2.0
10	PS/2 Mouse
11	PS/2 Keyboard
12	Bluetooth antenna connector

2.4.1.1 Under the Tx800 service-lid

Figure 2 Overview: connections and interfaces under the service-lid

Position	Function
1	USB 2.0
2	Harddrive
3	Compact Flash slot (behind HD cable)
4	Battery/UPS
5	Mini PCI slot
6	PC Card slot (option)

2.4.2 Interfaces and connections, Tx700

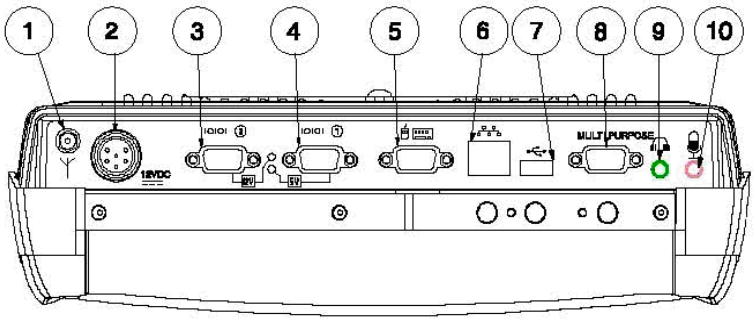


Figure 3 Overview connections and interfaces, Tx700

Connections and interfaces

Position	Function
1	Connection for external aerial
2	Power supply
3	COM2 (serial port 2) Yellow light indicates 12V out from pin 9
4	COM1 (serial port 1) Green light indicates 5V out from pin 9
5	Keyboard/mouse
6	RJ-45 10/100 LAN
7	1 x USB 2.0
8	Connection for multi purpose usage
9	Audio Out 3.5 mm
10	Mic In 3.5 mm
11	Connection for external aerial
12	Power supply

2.4.3 Peripherals and accessories

Listed below are some of the peripherals which can be connected to the Trux computer. More details can be found in the Tx700 User's Guide or the Tx800 User's Guides.

Peripheral
Keyboard
Mouse
Printer
Barcode reader
External monitor
GPS-system
Mobile communication
Headset/Audio out
Microphone
Antennas

2.5 Electrical installation

Always exercise caution when working with electricity!

2.5.1 Connecting to power source

Always exercise caution when working with electricity.

2.5.2 Connecting electrical cables to power sources

The Trux computer comes with a four-meter, four- wired power cable; brown for positive and white for negative, and 2 conductors; yellow and green, to enable the screen black-out function.

If the black out screen function is not used, see section 2.5.2.1. If the black out function is used, see section 2.5.2.2.

Connect the brown part of this cable to positive and the white part to negative on the DC/DC converter power source, and fuse it according to these specifications shown below:

Specifications for electrical supply

Always observe input voltage range specified on the DC to DC power supply and the optional screen blackout box.

Voltage	12 VDC ± 10% always use insulated DC/DC transformers
Power	50 W
Fuse	5 A (slow blow fuse) 3 A (for optional screen blackout box. Fuses ARE NOT supplied by Åkerströms.

Then connect the power cable to the computer's power supply outlet; see Figure 4.

Never connect power to pins 5 or 6, which are for the screen's black-out function.

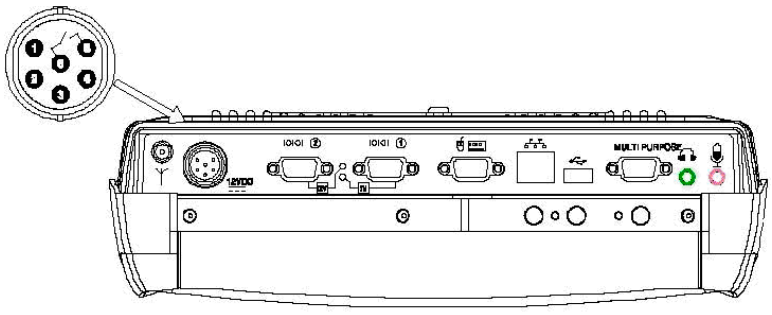


Figure 4 Connection for power supply

	For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. This fused circuit requires a user supplied 5 Amp maximum time delay (slow blow) high interrupting rating fuse. If the supply connection is made directly to the battery, the fuse should be installed in the positive lead within 5 inches of the battery positive (+) terminal.
	For installation by trained service personnel only.
	Risk of ignition or explosion. Explosive gas mixture may be vented from battery. Work only in well ventilated area. Avoid creating arcs and sparks at battery terminals.

How To: Connect Vehicle Electrical Connection

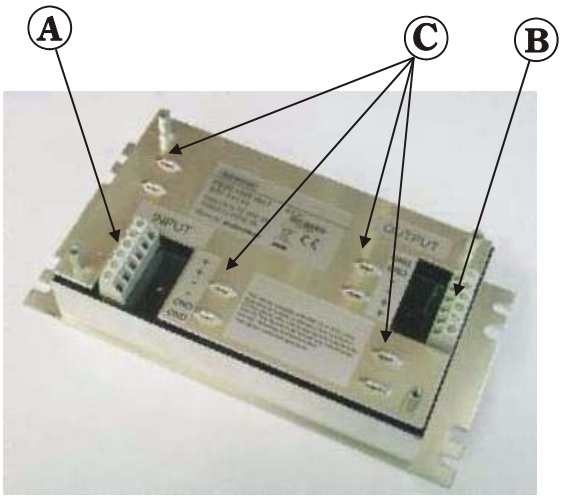
1. Please review section 2.5.2.1 (without blackout screen box) or section 2.5.2.2 (with blackout screen box) before beginning power cable install.
2. The Trux computer must be powered off.
3. Begin by connecting the power cable to the Trux computer. Work from the Trux computer with the last connection being to the vehicle's power source.
4. Route the cable from the Trux computer to the DC to DC converter and, optionally, the blackout screen box. Cut the cable to length and strip the wire ends. If the blackout screen box is not used, do not strip the green and yellow wires.

   Route the power cable the shortest way possible. The cable is rated for a maximum temperature of 105°C (221°F). When routing this cable it should be protected from physical damage and from surfaces that might exceed this temperature.

   Do not expose the cable to chemicals or oil that may cause the wiring insulation to deteriorate.

   Note: If the vehicle is equipped with a panel containing Silicon Controller Rectifiers (SCR's), avoid routing the power cable in close proximity to these devices.

   Always route the cable so that it does not interfere with safe operation and maintenance of the vehicle.
5. Remove the lid from the DC to DC converter. Attach the stripped wire ends to the DC to DC converter.



A DC Input

B DC Output

C Looms to secure wiring

The input and output blocks each have two + and two – minus connectors. Either connector in the block can be used to connect the matching polarity wire.

Use the looms and wire ties to secure all wiring then reattach the cover with the screws.

6. If the blackout screen box is used, attach the stripped wire ends to the box. Refer to section 2.5.2.2 and the label on the blackout screen box for proper wiring connection.

7. Connect the DC to DC converter to the vehicle's electrical system.
8. While observing the fuse requirements specified above, connect the power cable as close as possible to the actual battery terminals of the vehicle. When available, always connect to unswitched terminals in vehicle fuse panel, after providing proper fusing.

   ATTENTION: ***For uninterrupted power, electrical supply connections should not be made at any point after the ignition switch of the vehicle.***

9. If used, connect the wiring for the blackout screen box.
10. Use proper electrical and mechanical fastening means for terminating the cable. Properly sized "crimp" type electrical terminals are an accepted method of termination. Please select electrical connectors sized for use with 18AWG (1mm^2) conductors.
11. Provide mechanical support for the cable by securing it to the vehicle structure at approximately one foot intervals, taking care not to over tighten and pinch conductors or penetrate outer cable jacket.

2.5.2.1 DC to DC Converter

Connect the brown part of this cable to positive and the white part to negative on the power source (DC/DC converter), and fuse it as shown below:

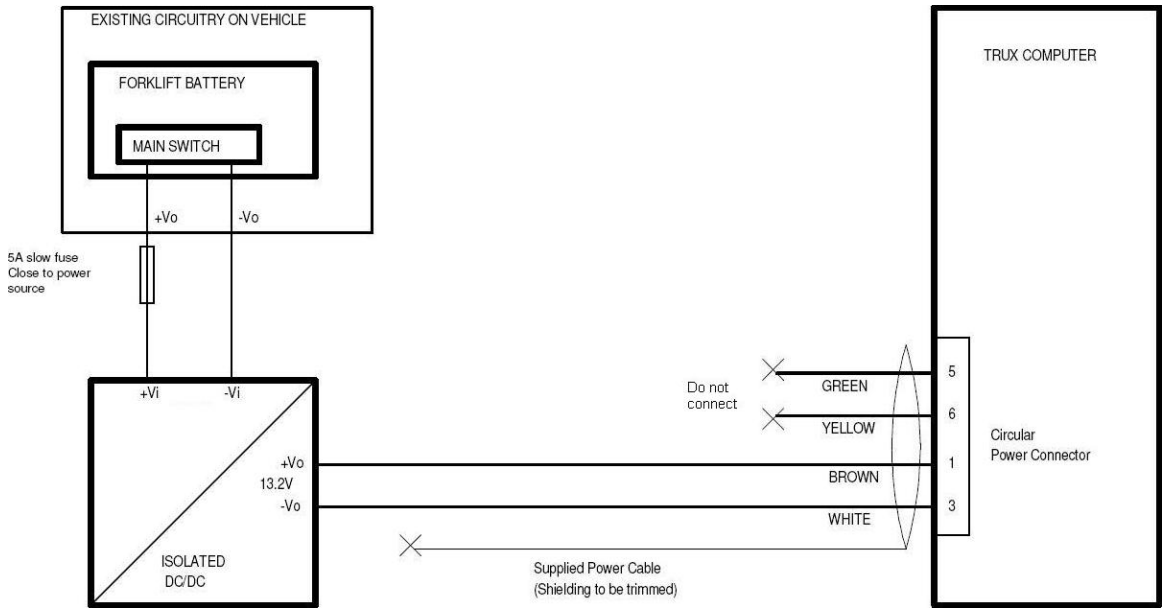


Figure 5 Wiring Diagram, Without Blackout Screen Box

2.5.2.2 DC to DC Converter with Blackout Screen Box

The power supply chassis connector contains two pins that are dedicated to dimming the screen for example when the vehicle is set in motion (when the gas pedal is pressed). The screen then lights up when the vehicle stops (when the gas pedal is released).

Connect pins 5 (green conductor) and 6 (yellow conductor) to the vehicle's gas pedal relay via a galvanically (electrically) isolated, open/close relay contact.

If the screen's black-out function is not selected and installed, isolate the end of the green and yellow parts in the open end of the cable.

You can set this function in the Trux Computer Manager application; see "Trux Manager" in the following chapter..

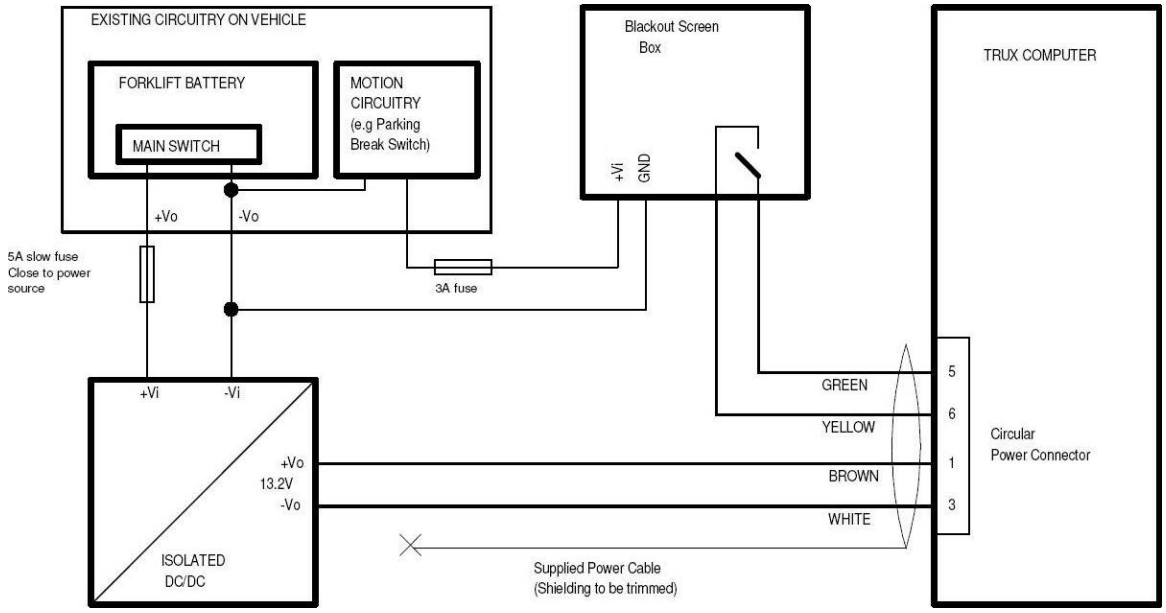


Figure 6 Wiring Diagram, With Blackout Screen Box

2.6 Mounting the Tx800 port lid

Cut the provided openable cable protection tube to the appropriate length. Put the cables in one half of it and then put the other half on, according to fig. 9.

2.7 Best practice recommendations

2.7.1 Ergonomics

The computer with touch screen shall be mounted in such way that it provides an optimal working position, without unnecessary physical strain. Ergonomic concern should also be taken to mounting of peripherals e.g. label printers and bar-code readers. Sometime specific brackets may need to be forged in order to reach an optimal solution, but commonly various brackets provided by Åkerströms are sufficient. A configuration with the display in line of sight and easy access to the touch screen is recommended, see below.

If an external antenna is used, it shall be placed high and not concealed in order to as much as possible allow free line of sight. Cables shall be as short as possible for minimum losses

2.7.2 Cable Protection

Use a flexible plastic conduit with Chemical resistance to fuels, mineral oils, fats, alkalies, weak acids and bases etc. to protect the cables. If all cables (new and factory installed) do not fit in the plastic conduit, fasten them in the conduit with black UV durable bundle bands.

2.7.3 Conductors, Terminals and Strain Relief

It is important to use adequate tools in order to be able to make proper termination, cutting and crimping.

Cables and terminals needs to be properly relieved from strains with e.g. bundle bands, in order not to vibrate loose and cause risk for hardware and personal damage.

2.7.4 Bundle Band (UV- and Oil resistant)

The bundle bands should be resistant to chemical fuels, oils and UV light (black). Fastening of cables shall be done in such manner that no risk of damage of surrounding equipment is at stake. It is recommended to attach bundle bands and cables with existing cable to ensure stability and durability.

2.7.5 Conduit Entries and Cable Ports

It is recommended to protect cables in transitions with cable ports. A drilled hole may be very crude and could inflict severe damage on cables and in the long run the electrical equipment. Depending on transition, bend radius and material various types exists.

2.7.6 DC/DC Placement and Mounting

The location of the power converter and screen blanking relay is preferably near the truck's control wiring. The placement surface shall be smooth and level and preferably on the metal chassis to ensure cooling. The DC/DC shall be fastened with screws and washers of correct dimension and length to ensure sustainability against vibration and bumps. If the DC/DC has a lid to better protect the cable terminations, be sure to reinstall the lid to protect the wiring.

Other considerations are to not mount the DC/DC too far away from the Trux computer and situated in such place where it is not in the way of operation for the operator.

2.7.7 DC/DC Electrical Installation

Before connecting the DC/DC to the vehicle power, one must carefully investigate from where to best connect. A rule of thumb is that power shall be sourced as close to the battery as possible and not through common switches e.g. emergency brake and ignition. Please see section 2.5 for details on power supply connections and applicable warnings and cautions.

2.7.8 Power Cables to Printers and Scanners

It is always recommended to optimize the cable lengths used, but when using pre-crimped cables, typically when installing peripheral equipment e.g. printers, scanners and other computer connected devices the length often differs from optimum. Therefore it may be difficult to hide excessive material. In such situation it is recommended to nicely bundle the cables with bands and find a suitable place for the package where it is not at risk of being torn, rubbed, friction or affected of other detriment.

2.8 Install Mounting Brackets

> ***Caution:*** *This device is intended to transmit RF energy. For protection against RF exposure to humans and in accordance with FCC rules and Industry Canada rules, this transmitter should be installed such that a minimum separation distance of at least 20 cm (7.8 in.) is maintained between the antenna and the general population. This device is not to be co-located with other transmitters.*

Several types of mounts are provided for the Tx700 or Tx800. For a complete listing of mounting kits and the contents of each kit, please refer to the Tx700 & Tx800 accessory catalog. This catalog is available at www.lxe.com or by contacting your LXE representative.

Tx700 or Tx800 with single RAM ball option

If the Tx700 or Tx800 is ordered with a single RAM ball, available mounting options include:

- Truck bracket with a single RAM ball (no keyboard mount provision)
- Truck bracket with a RAM ball for Tx700 or Tx800 mount plus a RAM ball for keyboard mount
- RAM ball base with integrated keyboard bracket for back of Tx700 or Tx800.

Tx700 or Tx800 with dual RAM ball option

If the Tx700 or Tx800 is ordered with dual RAM balls, available mounting options include:

- Truck bracket with a dual RAM balls (no keyboard mount provision)
- Truck bracket with dual RAM balls for Tx700 or Tx800 mount plus a RAM ball for keyboard mount

Keyboard mounting options

They keyboard may be mounted using:

- Integrated keyboard bracket included in some single RAM ball mounting kits
- A RAM mount using the keyboard ball on some truck brackets
- A stand alone keyboard mount using a RAM ball attached to the vehicle

Individual brackets

Many individual mounting brackets are also available.

2.8.1 RAM Mount System

The following RAM balls are used to mount the Tx700 or Tx800:

D-sized (2.25”) balls and arms

Used to mount the Tx700 or Tx800 when a single RAM ball is ordered on the back of the Tx700 or Tx800. A D-sized ball is also used on the truck.

C-sized (1.5”) balls and arms

Used to mount the Tx700 or Tx800 when dual RAM balls are ordered on the back of the Tx700 or Tx800. A pair of C-sized balls is also used on the truck.

Keyboard brackets also use C-sized ball. A corresponding C-sized ball is either included as part of the Tx700 or Tx800 mounting bracket or mounted independently on the truck for the keyboard assembly.

2.8.2 Mounting Procedure

2.8.2.1 Step 1 – Mount Vehicle RAM Ball(s)

Determine the position for mounting the RAM ball(s). Be sure to position the RAM ball(s) to allow access to the switches and ports on the bottom of the Tx700 or Tx800.

Depending on the options ordered with the Tx700 or Tx800, the RAM ball may be:

- A single or dual RAM ball mounted directly to the truck
- A single or dual RAM ball mounted to a plate. The plate then mounts to the truck.
- A single RAM ball integrated with a mounting plate
- A single or dual RAM squeeze clamp style ball
- A single or dual RAM pipe clamp style ball

Additionally, some mounting plates contain a provision for another RAM ball which is used to mount the keyboard.

Sample mounting options:

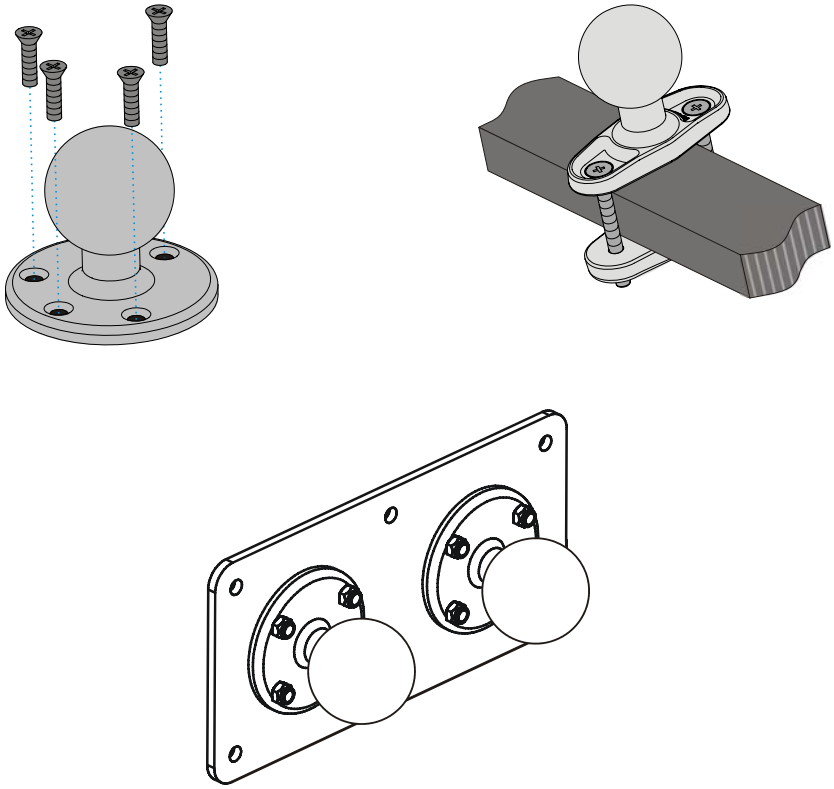


Figure 7 Sample RAM Ball Mounting Options

2.8.2.2 Step 2 – Prepare Tx700 or Tx800

The Tx700 or Tx800 is delivered with one or two RAM balls installed depending on the configuration ordered.

If an integrated keyboard bracket is to be mounted to the rear of the Tx700 or Tx800, follow the procedure below. Otherwise, skip to the next step.

1. The Tx700 or Tx800 must be off and the power cord should not be attached during this procedure.

2. Place the Tx700 or Tx800 face down on a stable surface.

3. Remove the RAM ball from the back of the Tx700 or Tx800. The hardware attaching the RAM ball is not reused.

4. Install the 2 M5x6 screws in the holes shown below.

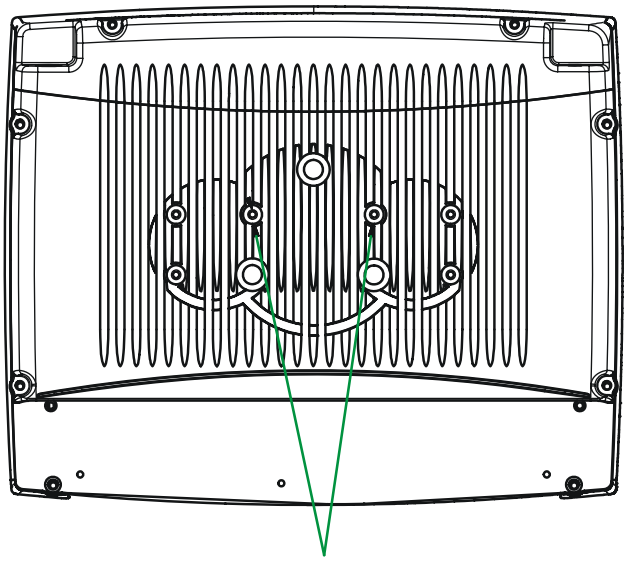
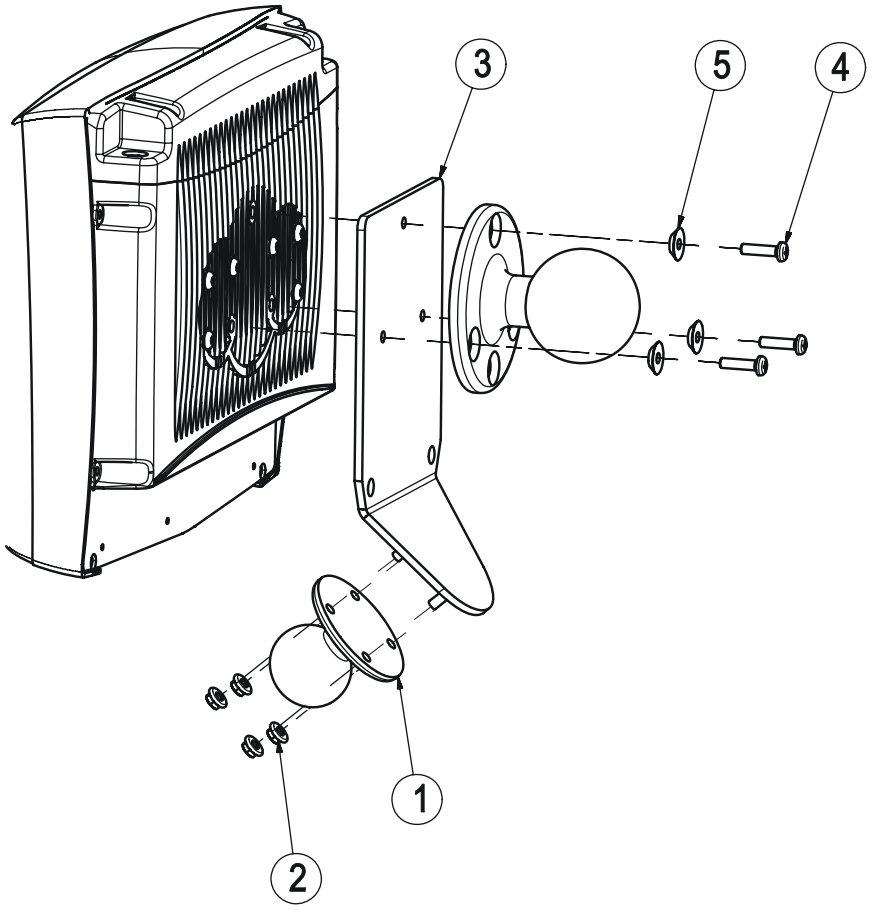


Figure 8 Screw Installation, Tx700 or Tx800

5. Install the 1.5” (C-size) RAM ball on the keyboard bracket using four M5 locking nuts.

6. Install the keyboard bracket and the 2.25” (D-Size) RAM ball (removed previously) onto the back of the Tx700 or Tx800. Use three M5x20 screws with three tapered washers.



1. 1.5” RAM ball
2. Locking nut, M5
3. Integrated keyboard bracket
4. Screw, M5x20 (DO NOT reuse original screws)
5. Washer for RAM ball (DO NOT reuse original washers)

2.8.2.3 Step 3 – Attach Keyboard to Bracket

LXE Keyboards

If using the optional integrated keyboard mount, attach the keyboard to keyboard mounting plate, using the appropriate screws:

- For the 95 key keyboard, use four 8-32x5/8 screws
- For the 60 key keyboard, use four 10-32x5/8 screws

Note: 95-key LXE keyboard shown.

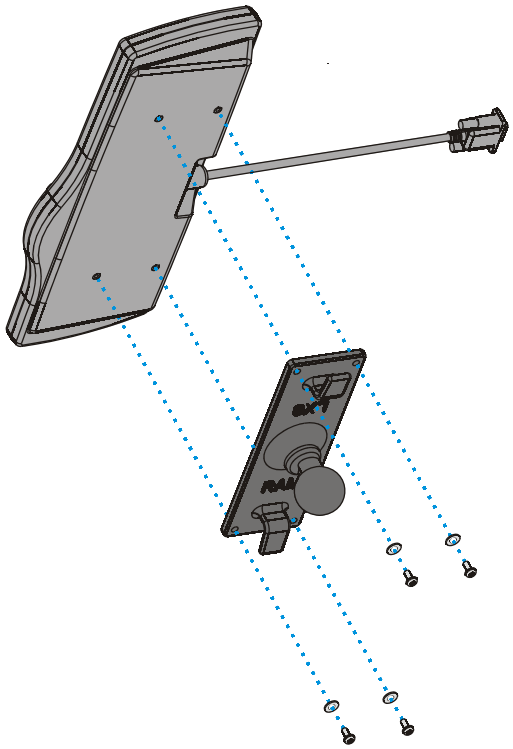


Figure 9 Attach Keyboard to Mounting Plate

Note Excess keyboard cable length can be looped around the hooks on the bottom of the keyboard mounting plate.

Other Keyboards

A generic keyboard plate is provided for non-LXE keyboards.

1. Attach the RAM ball to the keyboard mounting plate.
2. Attach the keyboard to the keyboard mounting plate. The mounting kit DOES NOT include hardware to attach the keyboard to the plate.

2.8.2.4 Step 4 – Attach Tx700 or Tx800 and Keyboard Assembly to RAM Base

Single RAM ball

1. Use a single D-sized RAM arm to attach the Tx700 or Tx800 assembly to the RAM ball on the vehicle.
2. Use a single C-sized RAM arm to attach the keyboard assembly to the C-sized ball on either the Tx700 or Tx800 keyboard bracket or a C-sized ball on the vehicle.

Dual RAM balls

1. Use a pair of C-sized arms to attach the Tx700 or Tx800 assembly to the RAM balls on the vehicle.
2. Use a C-sized arm to attach the keyboard assembly to a C-sized ball on the vehicle.

2.8.3 Completed Assembly

Samples of completed Tx700 or Tx800 bracket assemblies are shown below

VX89A021KIT21 including RAM ball base and LXE keyboard bracket

VX89A025KIT25 including RAM ball base and generic keyboard bracket

Figure 10 Completed RAM Mount Assembly

2.9 Installation of peripherals

Commonly peripherals such as label printers and bar-code readers are used.

Åkerströms Trux AB offers peripherals that facilitate use of the Trux unit. If you order peripherals with the computer, then the drivers are pre-installed. If you order them later or from a supplier other than Åkerströms Trux AB, you might have to install the drivers; if so, refer to the peripheral's documentation.

If you change or re-install the computer's operating system, you might have to reinstall the pre-installed drivers.

Examples of keyboard placement on various truck models is found in appendix.

After peripherals are connected, fasten the cables to the bottom of the computer using cable straps or similar.

2.9.1 Supplying power to peripherals

Some peripherals require power from the computer's COM or keyboard ports, that is, the scanner and keyboard with built-in lights.

You can configure the Trux as follow:

- 12 V power is supplied from pin 9 on the COM 2 port
- 5 V power is supplied from pin 9 on the COM 1 port
- 12 V power is supplied from pin 6 on the keyboard/mouse port (Tx700)
- 12 V power is supplied form pin 5 on the multipurpose port (Tx800)

Use the Trux Computer Manager to configure activation of the power supply

For details regarding settings, UPS handling, parameterization of the black-out screen function and more, please see "Trux Manager" in the following chapter.

3 System Configuration

3.1 Introduction

This chapter provides details on configuring the Trux computer. General Microsoft Windows configuration options are not covered in this manual. Instead this manual focuses on those aspects of the Trux computer configuration which may differ from a standard desktop PC.

Refer to this chapter for details on:

- Soft keyboards
- Trux Manager Application
- Wedge
- Touchscreen.

Wireless configuration, including the 802.11 radio, Bluetooth and WAN, is covered in Chapter 4, “Wireless Network Configuration”.

3.2 Soft Keyboards

The Tx700 and Tx800 can be ordered with a soft keyboard in a variety of configurations. When the soft keyboard is ordered, it is installed before the computer is shipped.

Figure 11 Sample Soft Keyboard

3.3 Trux Manager

There are differences in the Trux Manager application depending on the type of Trux computer.

3.3.1 Trux Manager for Tx700

In the Control Panel, click on **Other Control Panel Options** and then the **Trux** icon to launch the Tx700 Computer Manager application.

3.3.1.1 Main Tab

The main tab shows the embedded controller's firmware version and build date as well as the Tx700 computer manager application version and build date. The Åkerströms logo is a clickable hyper link.

There are no user configurable options on this tab.

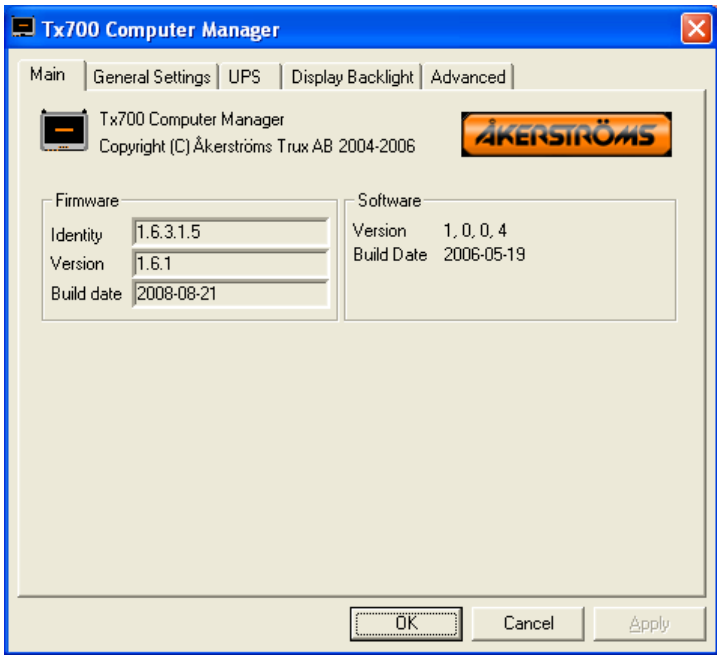


Figure 12 Tx700 Trux Manager Main Tab

3.3.1.2 General Settings Tab

The General Settings tab provides configuration options for the COM1, COM2 and Multipurpose Connector ports, Startup and Shutdown options and configuration of the optional defroster.

After making any desired changes, click **Apply** to apply the new changes or **OK** to apply the changes and dismiss the Trux Manager screen.

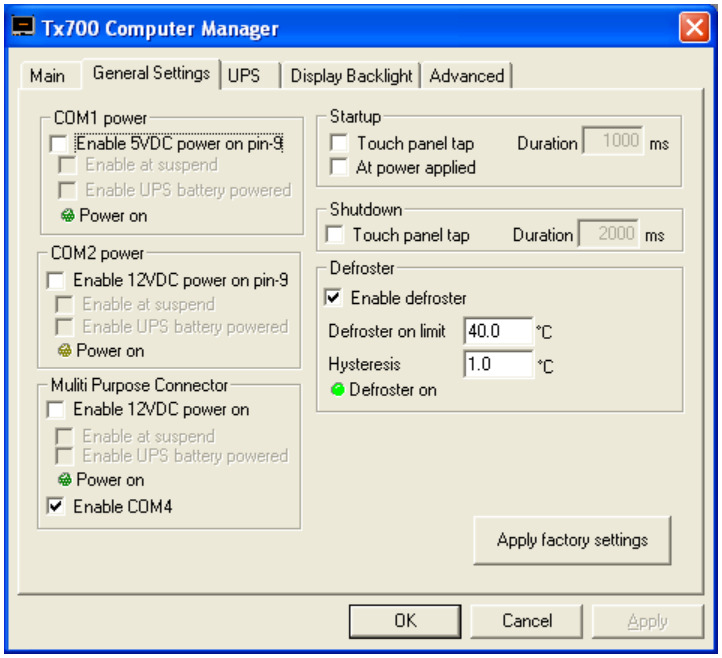


Figure 13 Tx700 Trux Manager General Settings Tab

COM1 Power

Enable 5VDC power on COM1 pin 9 to power external 5V devices with a maximum power consumption of 2,5W, 500mA.

If you want the external device to be powered in suspend mode or when the terminal runs on its UPS battery, you must also select those options.

COM2 Power

Enable 12VDC power on COM2 pin 9 to power external 12V devices with a maximum power consumption of 6W, 500mA. Options are the same as for COM1.

Mult Purpose Connector

Enable 12VDC power on Multi Purpose Connector COM4 pin 9 to power external 12V devices. Same power consumption and options as COM2.

COM4 is enabled by default but can be de-selected if necessary.

Startup

Select optional ways to power up the Tx700:

- by touch panel tap or
- by applying power to the terminal.

If touch panel tap is selected, you have the possibility to set the tap duration before terminal start time. Default value is 1 second (1000 ms).

Shutdown

Select touch panel tap as an optional way to shutdown the terminal. You have the possibility to set a tap duration before terminal shutdown time. Default value is 2 seconds (2000 ms).

Important! When this shutdown option is selected, firmware will issue a power button event. This means that a touch panel tap performs the same function as the power button. See the Advanced tab of the Power Options Properties in Windows Control Panel for power button configuration. The default value in a Tx700 Windows image is shutdown.

Defroster

Enable defroster (heated touch panel). This option is only relevant if the terminal is equipped with an optional heated touch panel. The default value is defroster enabled.

The defroster will turn off when the temperature goes above 40°C inside the terminal and turn on again below 39°C (default values).

Note! Before making any changes to the default values, remember that the temperature outside the terminal is typically 20°C lower than inside.

Apply Factory Settings

Clicking this button restores all customized settings to their default values after the terminal has been shutdown and restarted.

3.3.1.3 UPS Tab

The UPS tab contains options for the UPS battery in the Tx700.

After making any desired changes, click **Apply** to apply the new changes or **OK** to apply the changes and dismiss the Trux Manager screen.

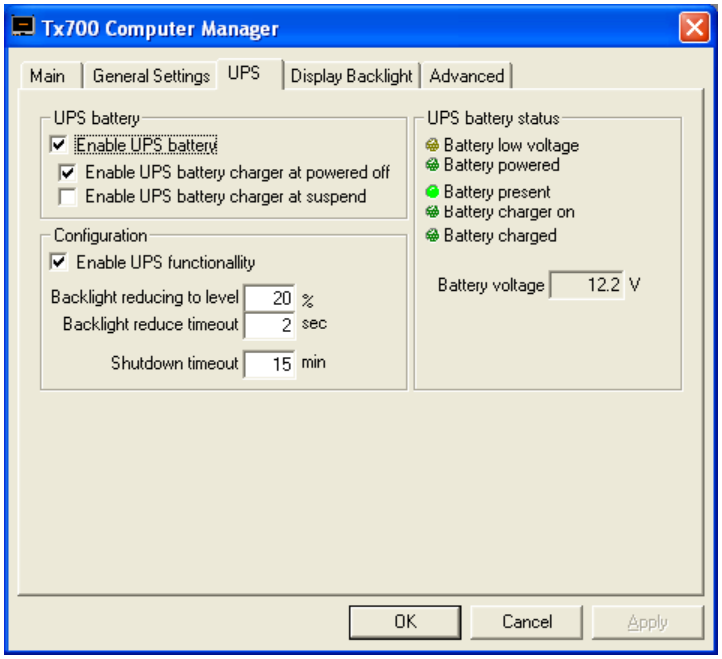


Figure 14 Tx700 Trux Manger UPS Tab

UPS Battery

Enable/disable the internal UPS battery. The UPS battery protects the terminal from being shutdown if there's a loss of input power.

Configuration

Configure how the terminal should react when/if the input power is lost by enabling UPS functionality:

- reduce backlight to a certain level after a specified timeout
- when to safely shutdown the system

UPS Battery Status

Monitor battery states and voltage.

3.3.1.4 Display Backlight Tab

The Display Backlight tab contains options and status for the display backlight.

After making any desired changes, click **Apply** to apply the new changes or **OK** to apply the changes and dismiss the Trux Manager screen.

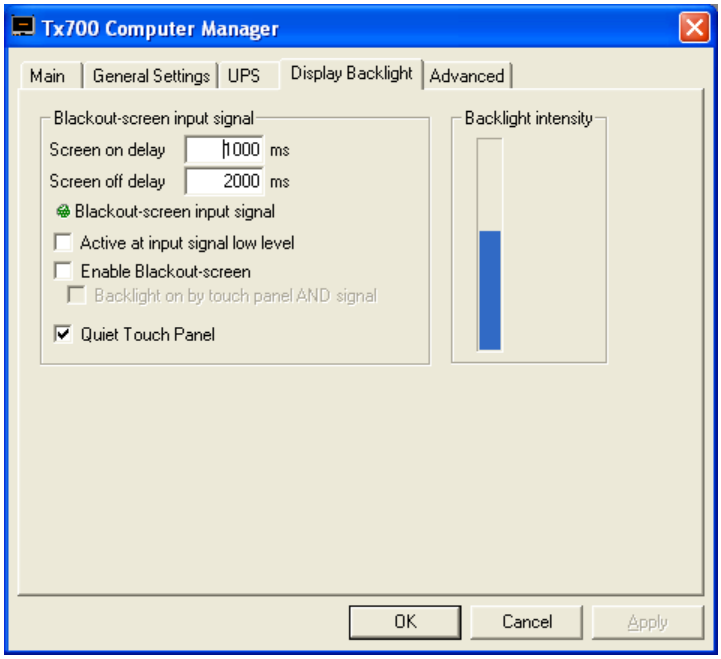


Figure 15 Tx700 Trux Manager Display Backlight Tab

Blackout-screen Input Signal

Enable Blackout screen functionality.

- When enabled, the backlight will turn off if there's a connection between pin 5 and 6 in the input power connector (yellow and green cable in the power cord.)
- If the input signal is inverted, enable "Active at input signal low level".
- Time delays for backlight on and off is configurable and you can also setup the backlight to come on again when the signal goes off AND the user taps the touch panel.
- The touch panel will not send any coordinates to its driver during blackout screen state if "Quiet touch panel" is enabled.

Backlight Intensity

Monitor backlight intensity 0-100%.

3.3.1.5 Advanced Tab

The Advanced tab provides monitoring for several advanced functions.

There are no user configurable options on this tab.

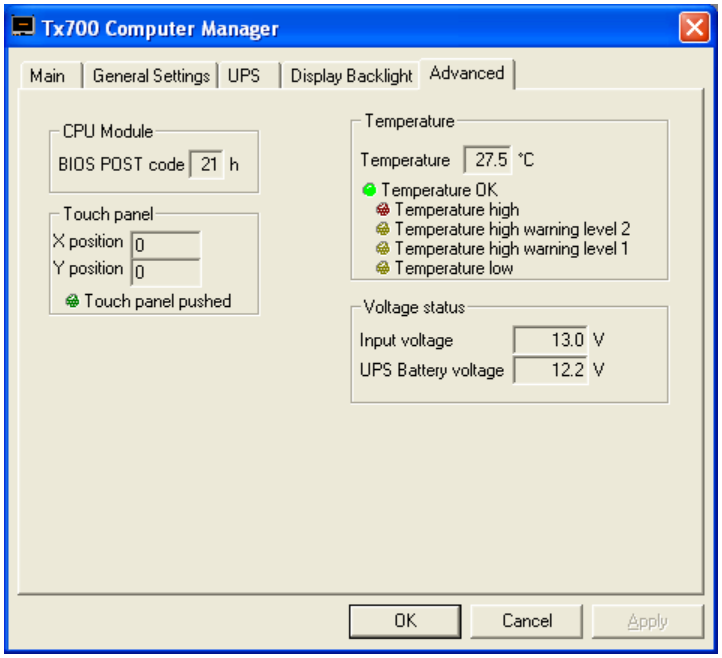


Figure 16 Tx700 Trux Manager Advanced Tab

On the Advanced tab you can:

- Monitor the latest POST code sent from the CPU Module BIOS.
- Monitor driver independent touch panel functionality
- Monitor the internal temperature at carrier board level.
- Monitor input and battery power.

3.3.2 Trux Manager for Tx800

In the Control Panel, click on **Other Control Panel Options** and then the **Trux** icon to launch the Tx800 Computer Manager application.

3.3.2.1 Main Tab

The main tab shows the embedded controller's firmware version and build date as well as the Tx800 computer manager application version and build date. The Åkerströms logo is a clickable hyper link.

There are no user configurable options on this tab.

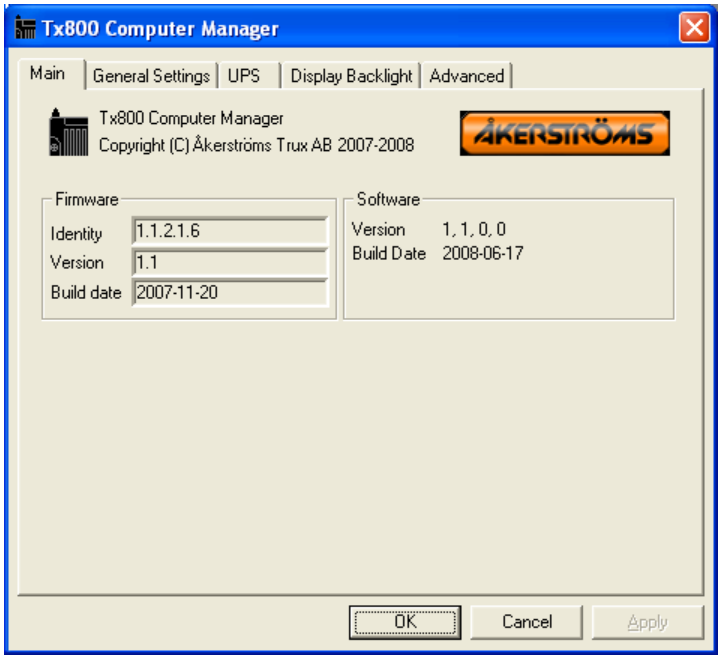


Figure 17 Tx800 Trux Manager Main Tab

3.3.2.2 General Settings Tab

The General Settings tab provides configuration options for the COM1, COM2 and Multipurpose Connector ports, Startup and Shutdown options and configuration of the optional defroster.

After making any desired changes, click **Apply** to apply the new changes or **OK** to apply the changes and dismiss the Trux Manager screen.

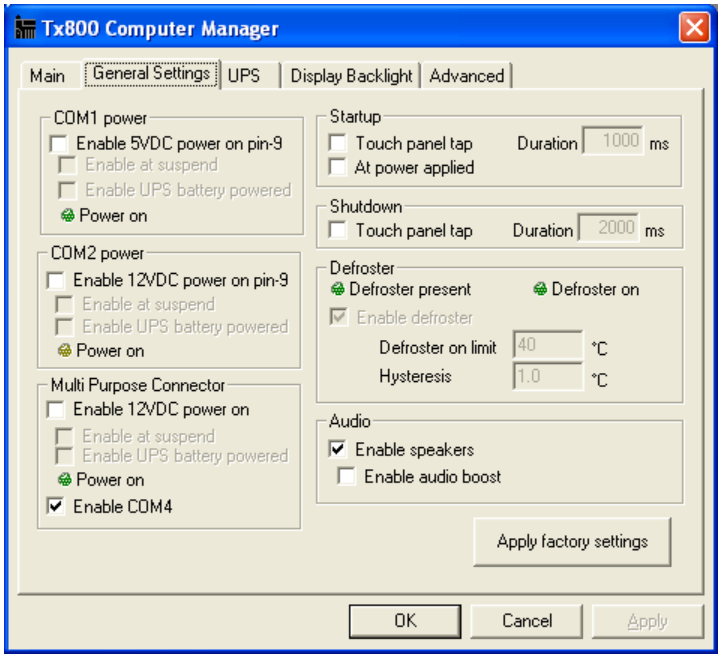


Figure 18 Tx800 Trux Manager General Settings Tab

COM1 Power

Enable 5VDC power on COM1 pin 9 to power external 5V devices with a maximum power consumption of 2,5W, 500mA.

If you want the external device to be powered in suspend mode or when the terminal runs on its UPS battery, you must also select those options.

COM2 Power

Enable 12VDC power on COM2 pin 9 to power external 12V devices with a maximum power consumption of 6W, 500mA. Options are the same as for COM1.

Multi Purpose Connector

Enable 12VDC power on Multi Purpose Connector COM4 pin 9 to power external 12V devices. Same power consumption and options as COM2.

COM4 is enabled by default but can be de-selected if necessary.

Startup

Select optional ways to power up the Tx800:

- by touch panel tap or
- by applying power to the terminal.

If touch panel tap is selected, you have the possibility to set the tap duration before terminal start time. Default value is 1 second (1000 ms).

Shutdown

Select touch panel tap as an optional way to shutdown the terminal. You have the possibility to set a tap duration before terminal shutdown time. Default value is 2 seconds (2000 ms).

Important! When this shutdown option is selected, firmware will issue a power button event. This means that a touch panel tap performs the same function as the power button. See the Advanced tab of the Power Options Properties in Windows Control Panel for power button configuration. The default value in a Tx800 Windows image is shutdown.

Defroster

Enable defroster (heated touch panel). This option is only relevant if the terminal is equipped with an optional heated touch panel. The default value is defroster enabled.

The defroster will turn off when the temperature goes above 40°C inside the terminal and turn on again below 39°C (default values).

Note! Before making any changes to the default values, remember that the temperature outside the terminal is typically 20°C lower than inside.

Audio

Enable the front speakers. If a louder maximum volume is needed, Enable audio boost will increase the volume by 5 db.

Apply Factory Settings

Clicking this button restores all customized settings to their default values after the terminal has been shutdown and restarted.

3.3.2.3 UPS Tab

The UPS tab contains options for the UPS battery in the Tx800.

After making any desired changes, click **Apply** to apply the new changes or **OK** to apply the changes and dismiss the Trux Manager screen.

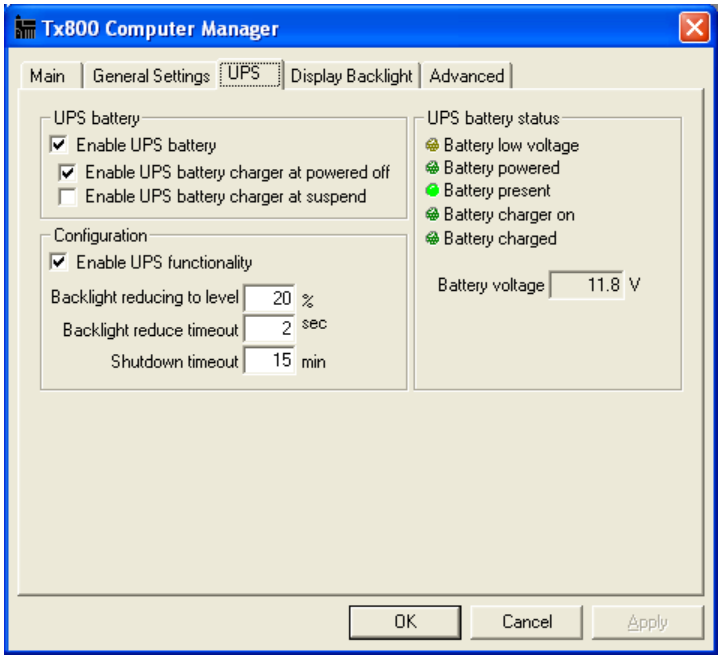


Figure 19 Tx800 Trux Manger UPS Tab

UPS Battery

Enable/disable the internal UPS battery. The UPS battery protects the terminal from being shutdown if there's a loss of input power.

Configuration

Configure how the terminal should react when/if the input power is lost by enabling UPS functionality:

- reduce backlight to a certain level after a specified timeout
- when to safely shutdown the system

UPS Battery Status

Monitor battery states and voltage.

3.3.2.4 Display Backlight Tab

The Display Backlight tab contains options and status for the display backlight.

After making any desired changes, click **Apply** to apply the new changes or **OK** to apply the changes and dismiss the Trux Manager screen.

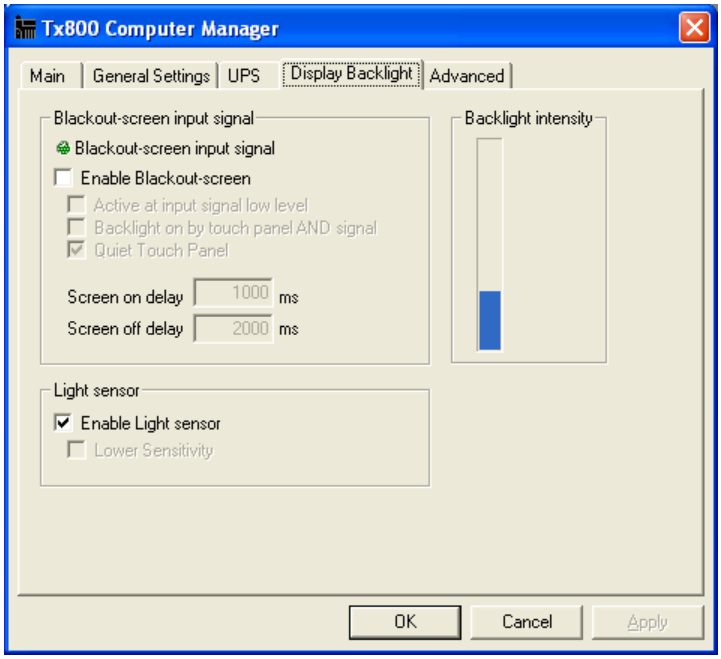


Figure 20 Tx800 Trux Manager Display Backlight Tab

Blackout-screen Input Signal

Enable Blackout screen functionality.

- When enabled, the backlight will turn off if there's a connection between pin 5 and 6 in the input power connector (yellow and green cable in the power cord.)
- If the input signal is inverted, enable "Active at input signal low level".
- Time delays for backlight on and off is configurable and you can also setup the backlight to come on again when the signal goes off AND the user taps the touch panel.
- The touch panel will not send any coordinates to its driver during blackout screen state if "Quiet touch panel" is enabled.

Light Sensor

Enable the light sensor on the front panel, which will automatically increase or reduce the display backlight when necessary. Enable lower sensitivity if a smoother behaviour is needed.

Backlight Intensity

Monitor backlight intensity 0-100%.

3.3.2.5 Advanced Tab

The Advanced tab provides monitoring for several advanced functions.

There are no user configurable options on this tab.

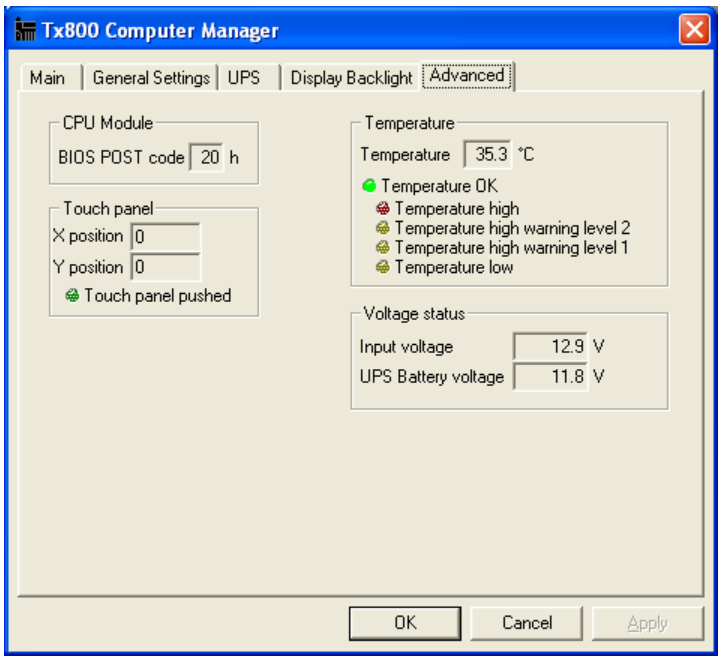


Figure 21 Tx800 Trux Manager Advanced Tab

On the Advanced tab you can:

- Monitor the latest POST code sent from the CPU Module BIOS.
- Monitor driver independent touch panel functionality
- Monitor the internal temperature at carrier board level.
- Monitor input and battery power.

3.4 Wedge

The Trux computer contains a software keyboard wedge that allows scanner input to be treated as keyboard input by applications.

3.4.1 Configuration

To configure the wedge, select **Start | All Programs | FreeFloat WLinq | WLinq**.

Click on the **Settings** button to configure WLinq. Make sure the **Communication** tab is selected.

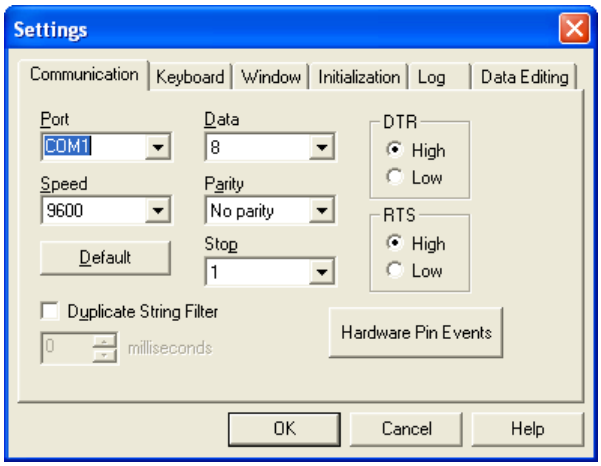


Figure 22 WLinq Communication tab

Adjust the settings on the communication tab to match the settings for the COM port to which the scanner is attached.

Next click the **Data Editing** tab.

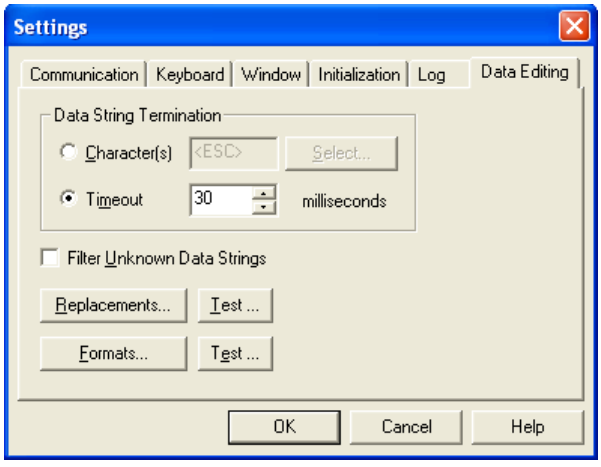


Figure 23 WLinq Data Editing Tab

Select the proper Data String Termination setting:

- If the scanner is configured to end a scanned string with a termination character (for example a CR or LF) click the button for **Character(s)**. Then click the **Select..** button and choose the termination character from the list.
- If the scanner is not sending a termination character, click the button for **Timeout** and select the period in milliseconds.

Click **OK** to save settings. Click **Hide** to hide the WLinq information screen.

When WLinq is running, it is indicated by a gray circular icon in the task bar. The icon turns green while WLinq is processing scanned data or red if there is an error.

To exit the WLinq wedge, click on the taskbar icon then click the **Unload** button. To restart WLinq, select **Start | All Programs | FreeFloat WLinq | WLinq** and click the **Hide** button.

There are many other options available in WLinq. To learn more, select **Start | All Programs | FreeFloat WLinq | Help for WLinq** or review the FreeFloat WLinq documentation included in 6. FreeFloat WLinq.

3.5 Touchscreen

The Trux computer is equipped with a pressure-sensitive touchscreen. Rather than using a mouse as pointing device, users select objects by touching the screen with a stylus or a finger.

Always use the accompanying stylus to point, drag or tap the screen. Never use metallic or sharp-pointed objects.

3.5.1 Using the stylus to select screen objects

To select an object on the interface, gently tap the screen:

- One time to click.
- Two times in rapid succession to double-click.
- Tap on the mouse symbol in the system tray, down in the right corner, the next click will then be a right click.

3.5.2 Calibrating the touchscreen

Touch-screen accuracy is calibrated using the touch-screen application.

Select **Start | All Programs | UPDD | Calibrate**.

A series of targets are displayed on screen. Touch the screen at the center of the target. Continue until the calibration ends. The calibration procedure times out if no user touch is received in 10 seconds.

Configuration options for the touchscreen, as well as online help, can be accessed by selecting **Start | All Programs | UPDD | Settings**.

4 Wireless Network Configuration

Several wireless devices may be installed in the Trux computer. The available devices and combinations may vary by regulatory domain. Available devices include:

- An 802.11 radio, either b/g or an a/b/g
- A Bluetooth radio
- A WAN card.

4.1 802.11 Radio

The 802.11 radio supports several options for wireless security. Select the appropriate section for your radio type for available configuration and wireless security options.

4.1.1 802.11b/g Radio

The 802.11b/g radio is configured with the Broadcom Wireless Utility (BWU). The BWU can be accessed by:

- Selecting **Start | All Programs | Broadcom Wireless | Broadcom Wireless Utility**
- Clicking on the BWU icon in the system tray.

4.1.1.1 Wireless Zero Config

This section assumes the BWU is used to configure the radio. However, it is possible to use the Windows Wireless Zero Config (WZC) utility to configure the radio.

To use WZC to configure the radio:

- Start the BWU and select the Wireless Networks tab.
- Uncheck “Let this tool manage your wireless networks”.
- Click **OK**.

The Windows WZC utility can now be used to configure the radio. Please refer to the Help function in Microsoft Windows XP for more information on using Windows to configure the wireless network connection.

To return radio control to the BWU, restart the BWU and follow the on screen instructions.

4.1.1.2 Using the BWU

There are many features contained in the BWU that are not covered in this document. For more information, click the **Help** button displayed on most BWU screens.

The Wireless Network tab displays configuration options and any currently configured connection profiles. Network profiles display the type of network (infrastructure or ad hoc, the network name) and an icon if the network is secured.

To create a network profile, follow these steps:

1. Click Add.
2. Click “Manually connect to an advanced network”.
3. Follow the instructions below for the desired network security option.

4.1.1.3 No Security

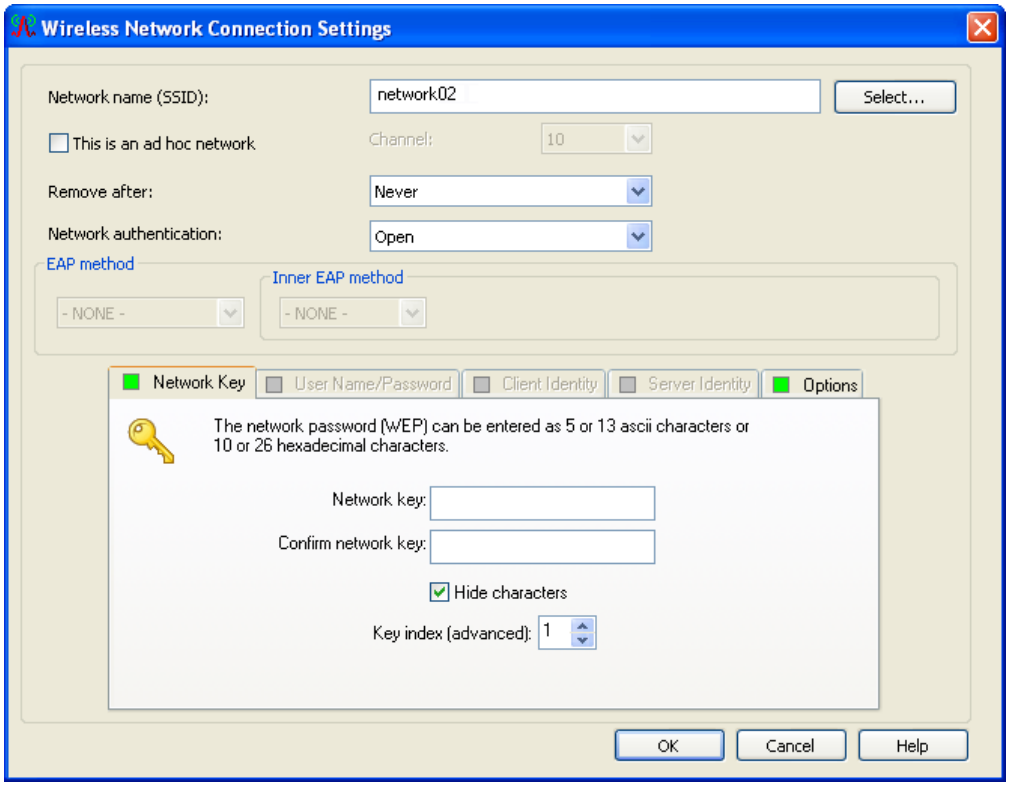


Figure 24 BWU, No Security

1. Enter the Network name (SSID).
2. Set Network authentication to **Open**.
3. Click **OK** to save the profile.
4. The BWU automatically connects to the first listed profile within range. Use the Up and Down icons to adjust the list as desired.

4.1.1.4 WEP

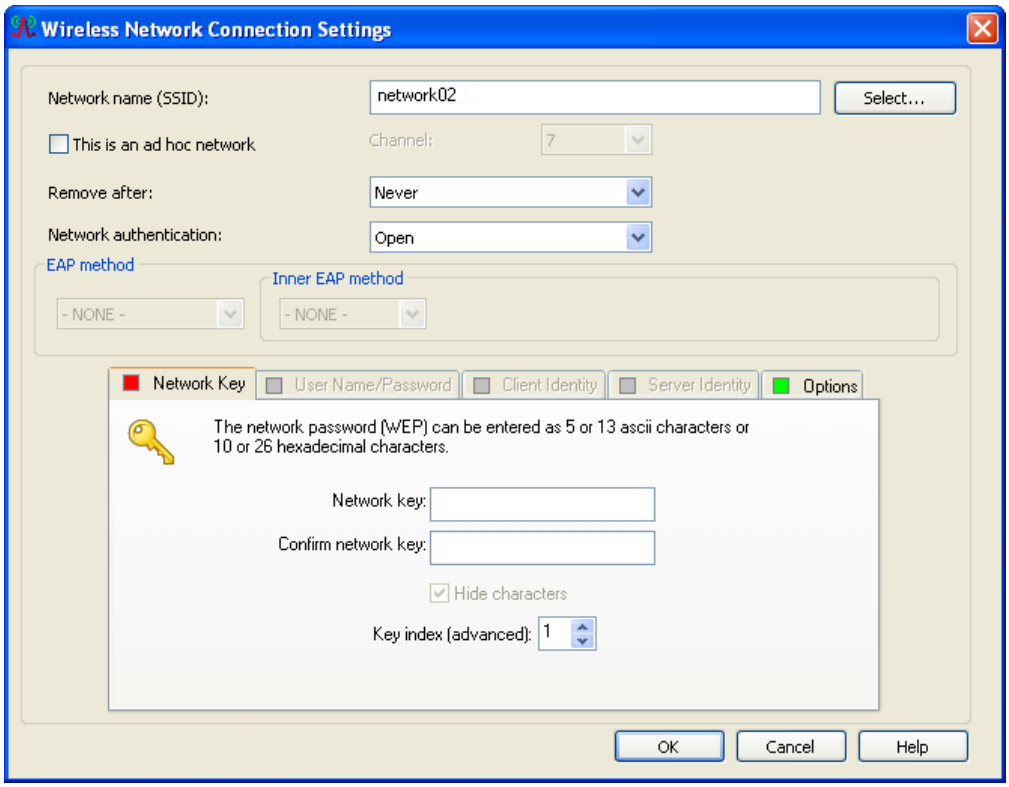


Figure 25 BWU, WEP

1. Enter the Network name (SSID).
2. Set Network authentication to **Open**.
3. Enter and confirm the network key under Network Key.
4. Click **OK** to save the profile.
5. The BWU automatically connects to the first listed profile within range. Use the Up and Down icons to adjust the list as desired.

4.1.1.5 LEAP

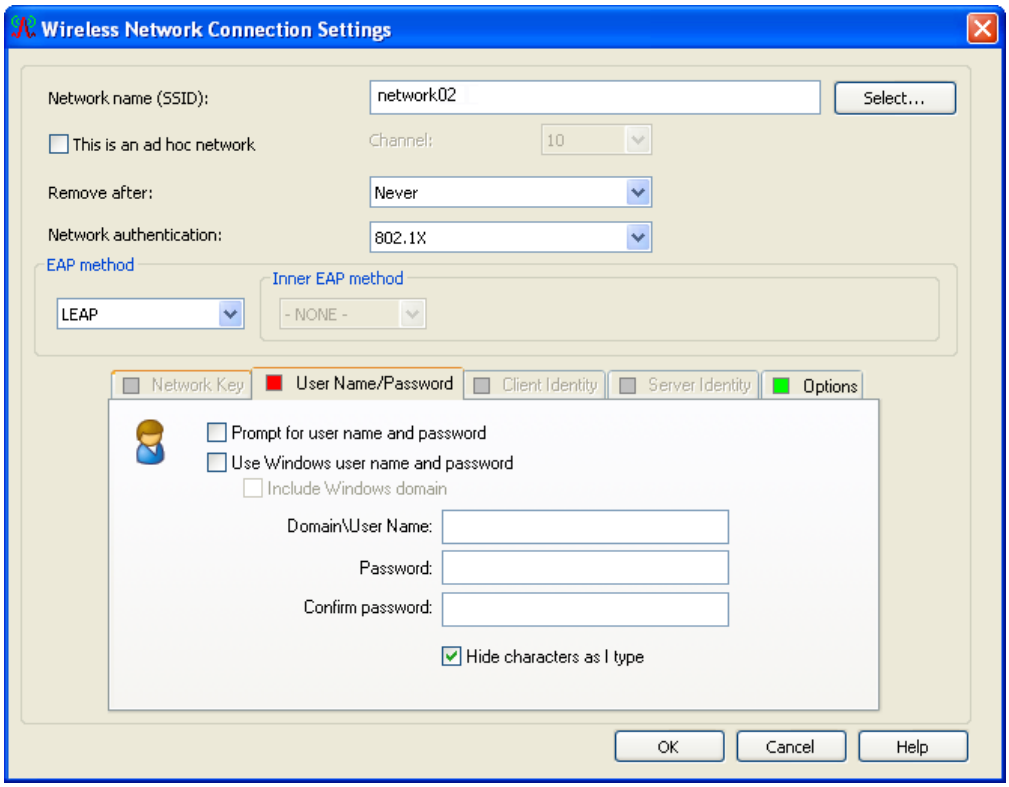


Figure 26 BWU, LEAP

1. Enter the Network name (SSID).
2. Set Network authentication to **802.1X**.
3. Select **LEAP** from the EAP method pulldown list.
4. Enter the user credentials and confirm the network password under User Name/Password.
5. Click **OK** to save the profile.
6. The BWU automatically connects to the first listed profile within range. Use the Up and Down icons to adjust the list as desired.

4.1.1.6 WPA-PSK

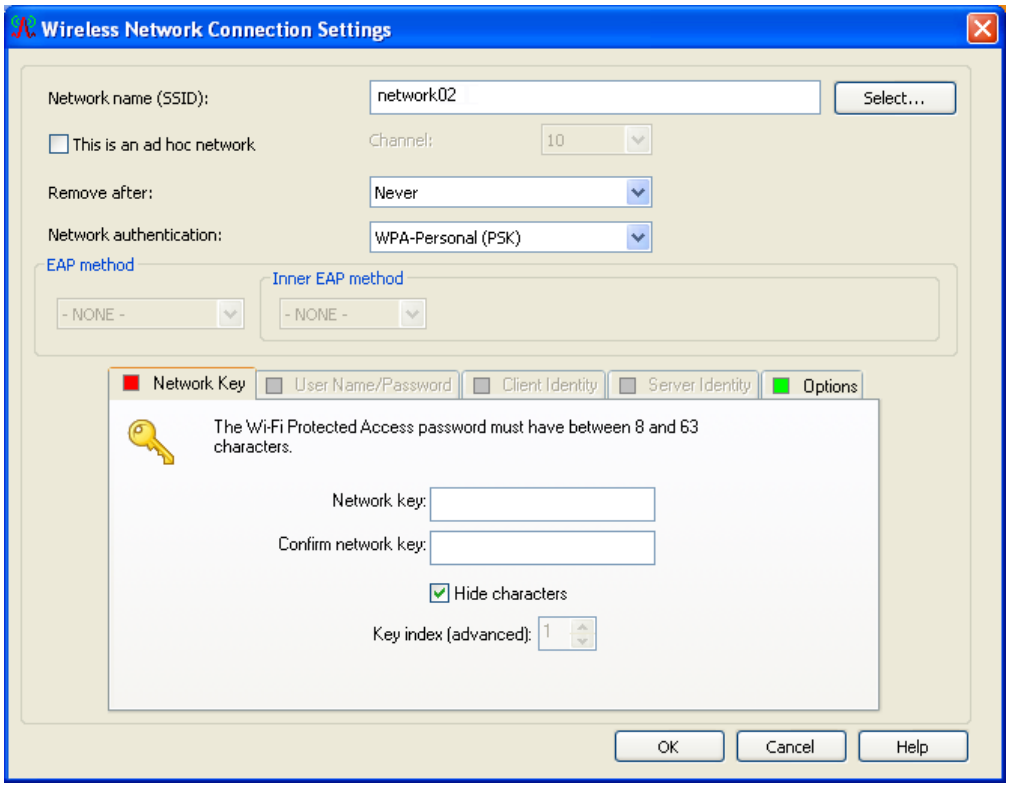


Figure 27 BWU, WPA-PSK

1. Enter the Network name (SSID).
2. Set Network authentication to **WPA-Personal (PSK)**.
3. Enter and confirm the network key under Network Key.
4. Click **OK** to save the profile.
5. The BWU automatically connects to the first listed profile within range. Use the Up and Down icons to adjust the list as desired.

4.1.1.7 PEAP/MS-CHAP

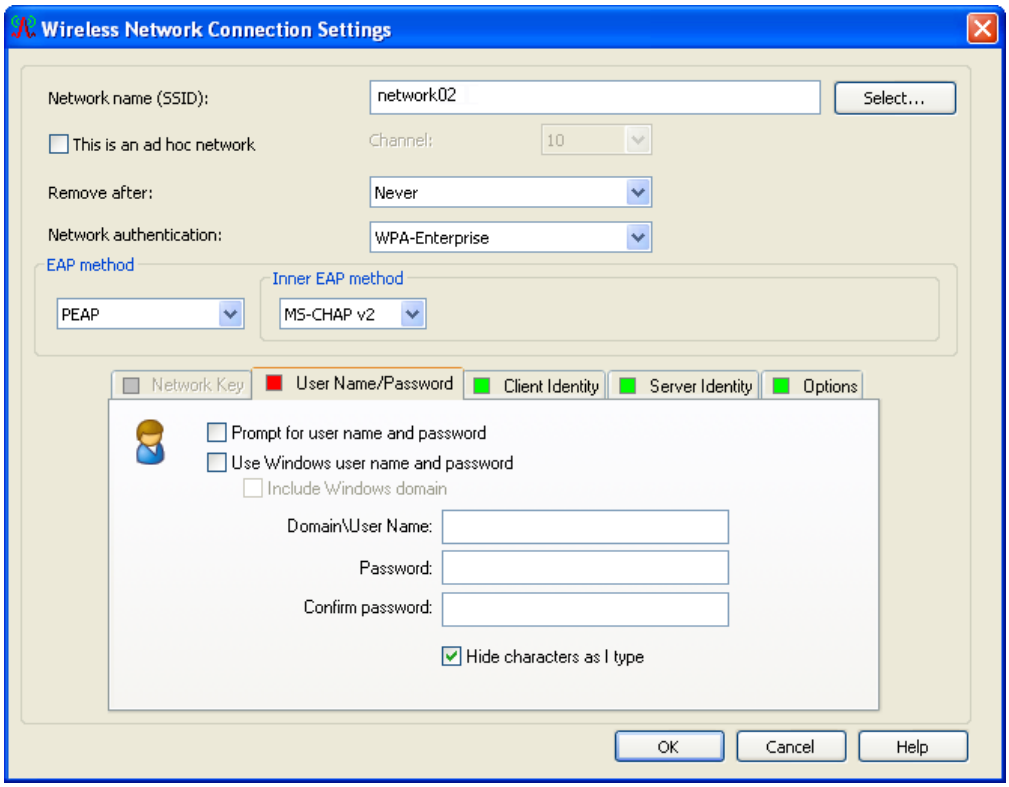


Figure 28 BWU, PEAP/MS-CHAP

1. Enter the Network name (SSID).
2. Set Network authentication to **WPA-Enterprise**.
3. Select **PEAP** from the EAP method pulldown list.
4. Select **MS-CHAP v2** from the Inner EAP method pulldown list.
5. Enter the user credentials and confirm the network password under User Name/Password.
6. Click **OK** to save the profile.
7. The BWU automatically connects to the first listed profile within range. Use the Up and Down icons to adjust the list as desired.

4.1.1.8 PEAP-GTC

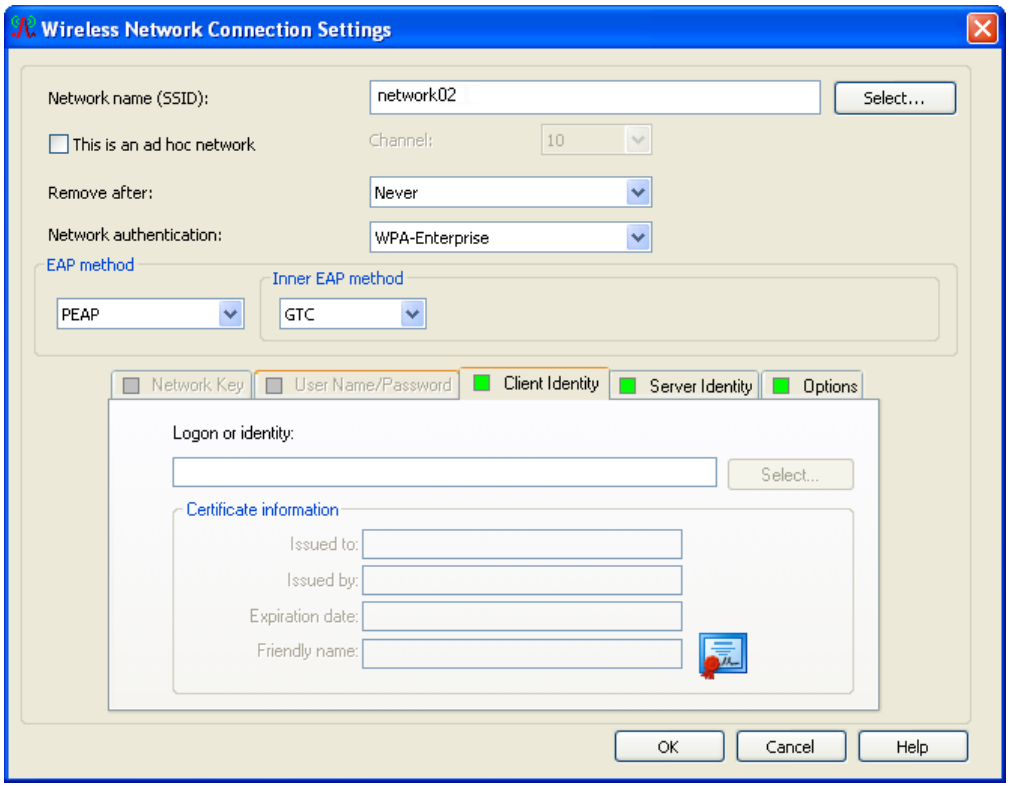


Figure 29 BWU, PEAP-GTC

1. Enter the Network name (SSID).
2. Set Network authentication to **WPA-Enterprise**.
3. Select **PEAP** from the EAP method pulldown list.
4. Select **GTC** from the Inner EAP method pulldown list.
5. Enter the appropriate token username for Logon or identity under Client Identity.
6. Click **OK** to save the profile.
7. The BWU automatically connects to the first listed profile within range. Use the Up and Down icons to adjust the list as desired.

4.1.1.9 EAP-TLS

EAP-TLS requires that appropriate server and user certificates are installed on the Trux computer. Please refer to the “Certificates” section later in this chapter for details.

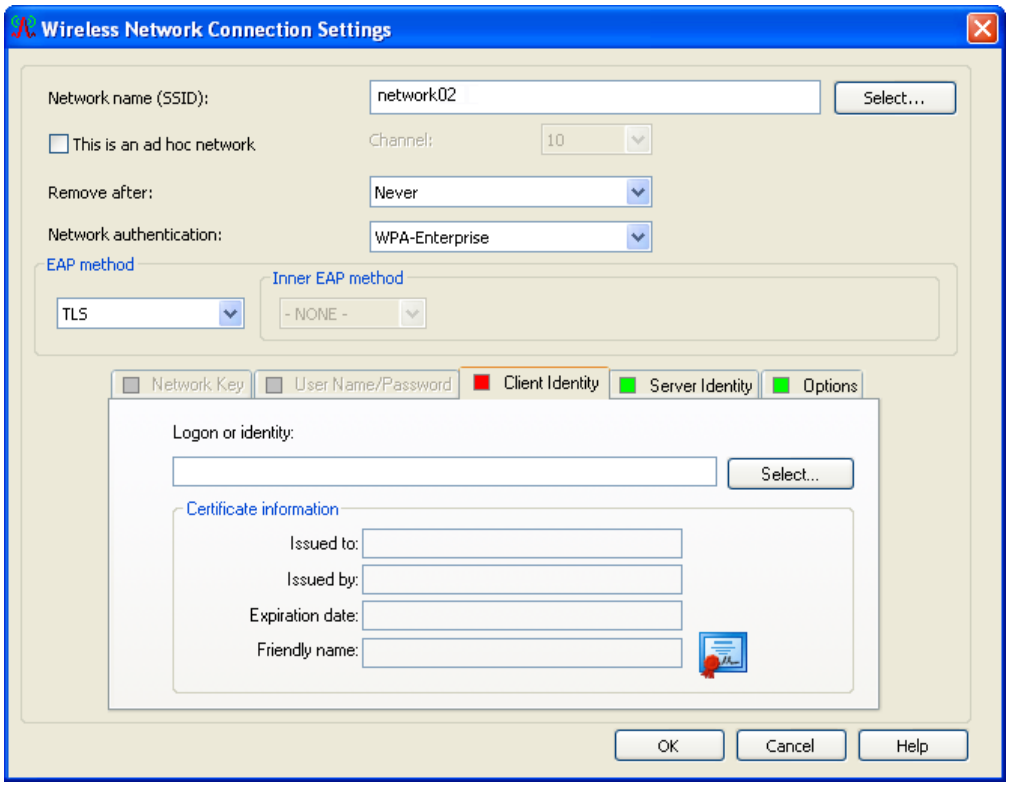


Figure 30 BWU, EAP-TLS Client Identity

1. Enter the Network name (SSID).
2. Set Network authentication to **WPA-Enterprise**.
3. Select **TLS** from the EAP method pulldown list.
4. Under Client Indentify, use the **Select** button to browse for the user certificate.
5. Click on Server Identity.

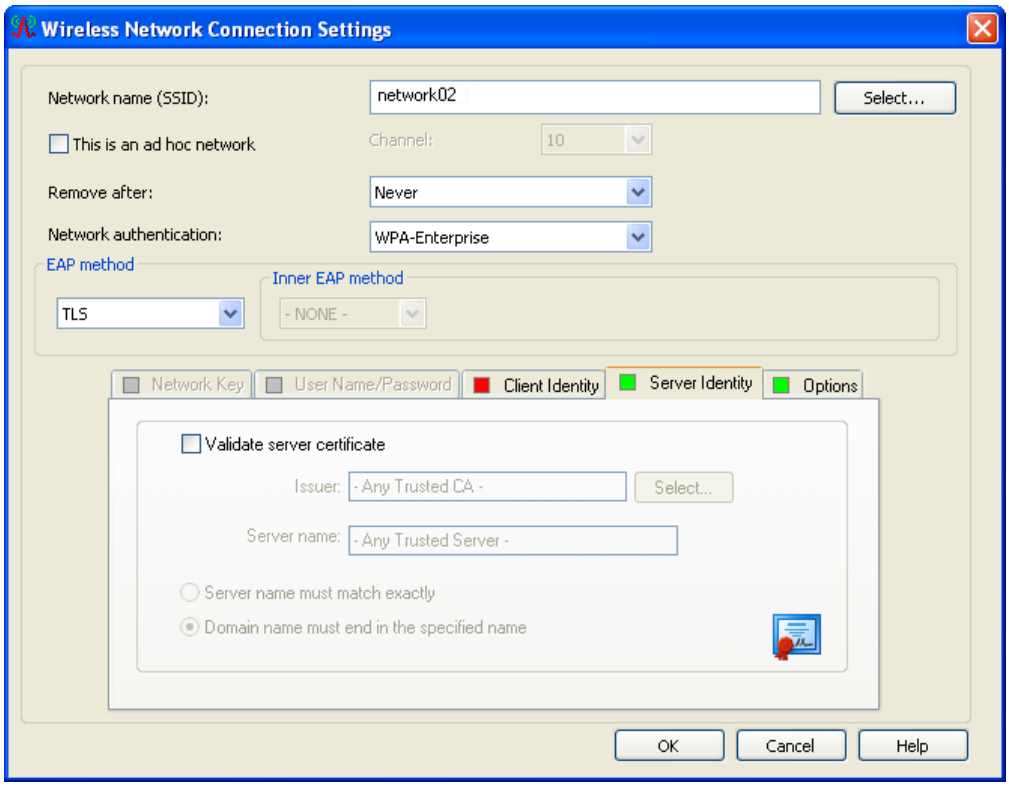


Figure 31 BWU, EAP-TLS Server Identity

1. Check to box to **Validate server certificate**.
2. Use the **Select** button to browse for the server certificate
3. Click **OK** to save the profile.
4. The BWU automatically connects to the first listed profile within range. Use the Up and Down icons to adjust the list as desired.

4.1.1.10 WPA LEAP

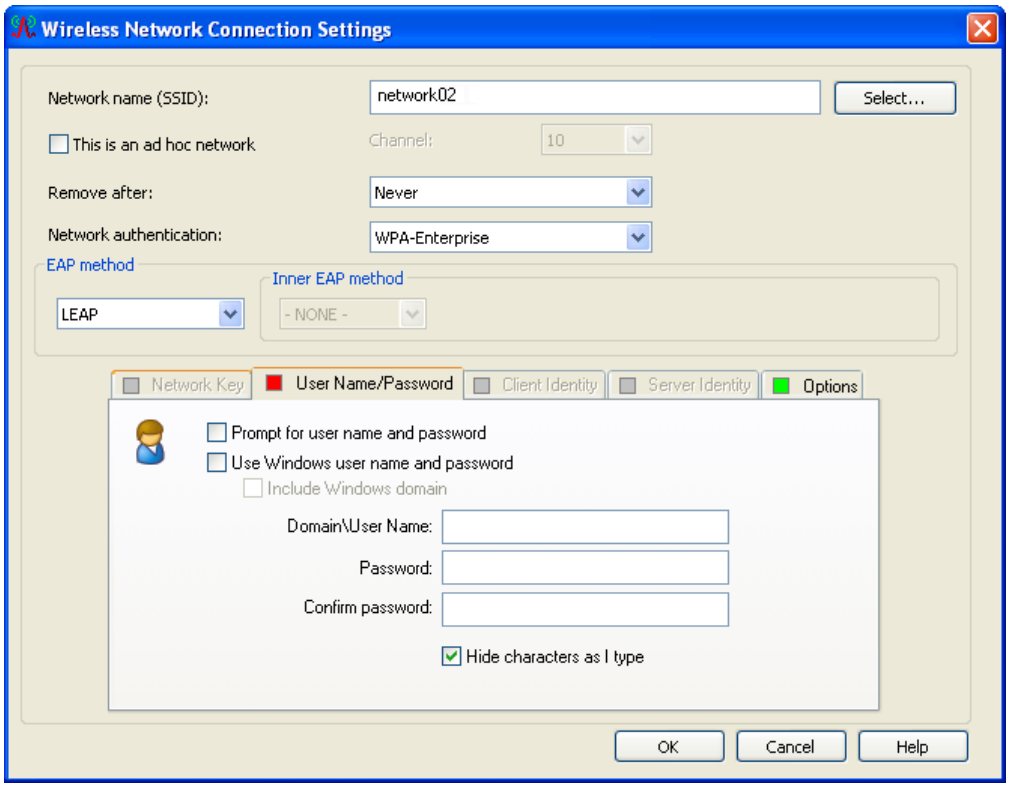


Figure 32 BWU, WPA LEAP

1. Enter the Network name (SSID).
2. Set Network authentication to **WPA-Enterprise**.
3. Select **LEAP** from the EAP method pulldown list.
4. Enter the appropriate user credentials and confirm the password under User Name/Password..
5. Click **OK** to save the profile.
6. The BWU automatically connects to the first listed profile within range. Use the Up and Down icons to adjust the list as desired.

4.1.1.11 EAP-FAST

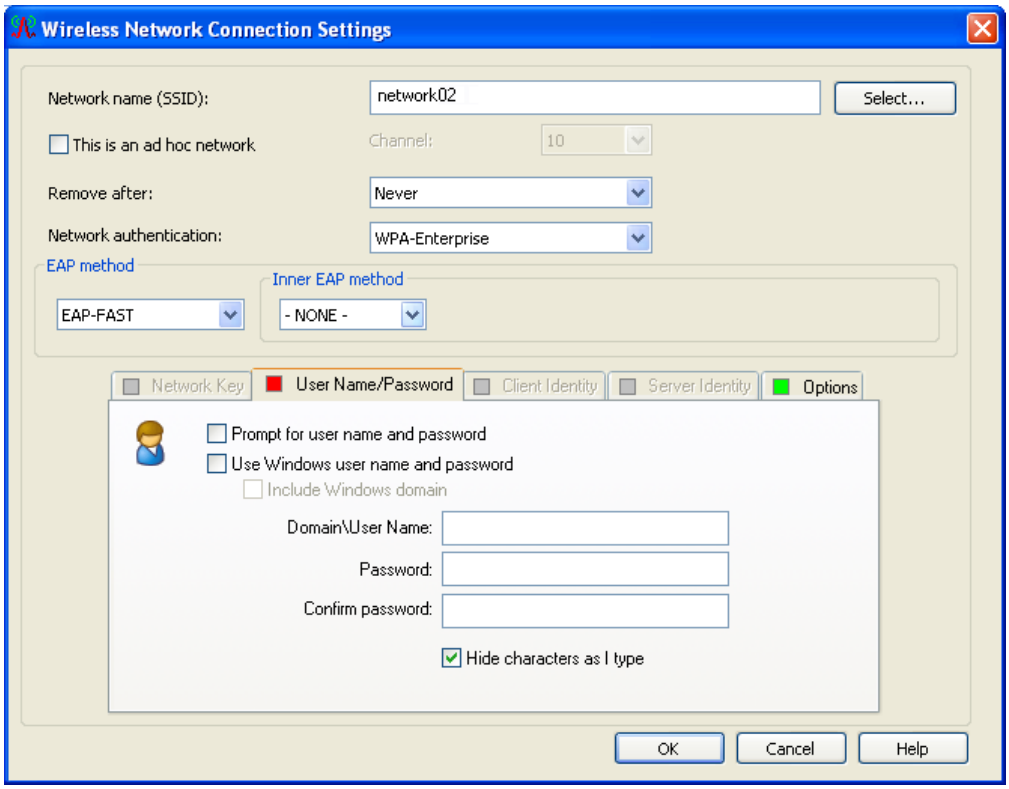


Figure 33 BWU, EAP-FAST

1. Enter the Network name (SSID).
2. Set Network authentication to **WPA-Enterprise**.
3. Select **EAP-FAST** from the EAP method pulldown list.
4. Enter the appropriate user credentials and confirm the password under User Name/Password.
5. Click **OK** to save the profile.
6. The BWU automatically connects to the first listed profile within range. Use the Up and Down icons to adjust the list as desired.

4.1.2 802.11a/b/g Radio

The 802.11b/g radio is configured with the Atheros Client Utility (ACU). The ACU can be accessed by:

- Selecting **Start | All Programs | Atheros | Atheros Client Utility**
- Clicking on the Atheros Client Utility on the desktop
- Clicking on the ACU icon in the system tray.

Note: The appearance of the ACU icon in the system tray varies depending on the strength or lack of an available wireless connection.

4.1.2.1 Wireless Zero Config

This section assumes the ACU is used to configure the radio. However, it is possible to use the Windows Wireless Zero Config (WZC) utility to configure the radio.

To use WZC to configure the radio:

- Double click on the network icon in the taskbar.
- Double click on the wireless connection.
- Click on View Wireless Networks.
- Click on Change Advanced Settings.
- Select the Wireless Networks tab.
- Check “Let this tool manage your wireless networks”.
- Click **OK**.

The Windows WZC utility can now be used to configure the radio. Please refer to the Help function in Microsoft Windows XP for more information on using Windows to configure the wireless network connection.

To return radio control to the ACU, uncheck the checkbox.

4.1.2.2 Using the ACU

There are many features contained in the ACU that are not covered in this document. For more information, click the **?** button then click on the desired section of the ACU screen.

The Profile Management tab displays any currently configured connection profiles.

To create a network profile, follow these steps:

1. Click **New**.

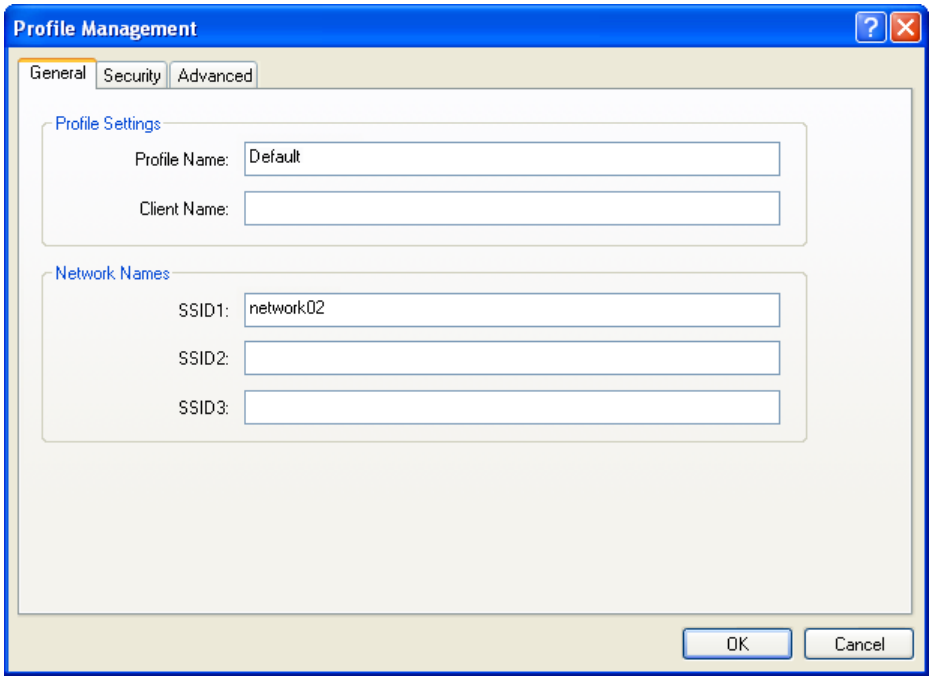


Figure 34 ACU, General Tab

2. Enter a profile name and an SSID on the **General** tab.
3. Click on the **Security** tab and follow the instructions below for the desired network security option.

4.1.2.3 No Security

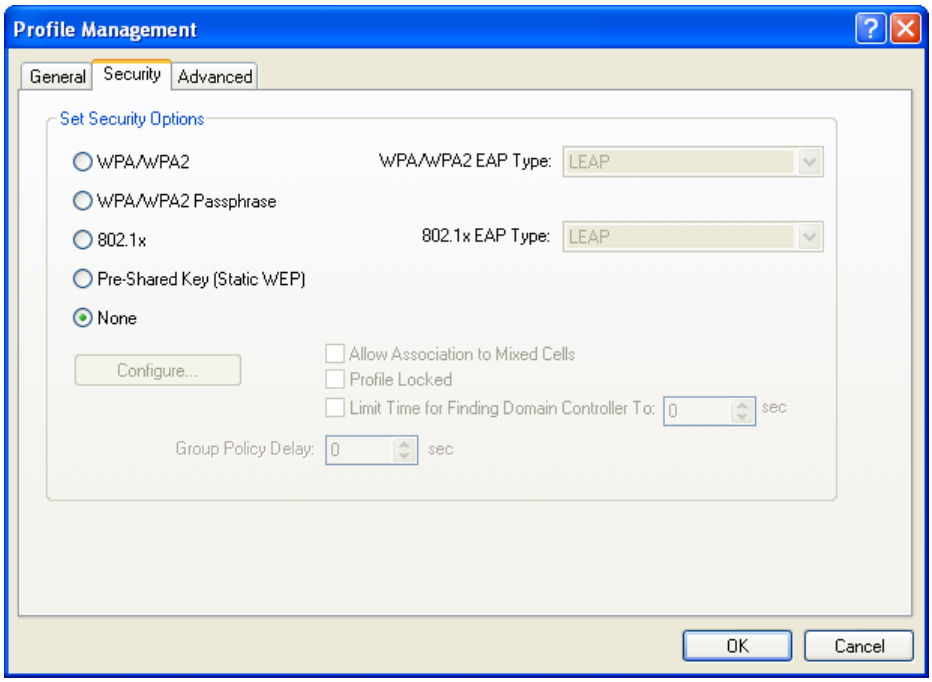


Figure 35 ACU, No Security

1. Select **None** from Set Security Options.
2. Click **OK** to save the profile.
3. Make sure the desired profile is selected on the Profile Management screen. Double clicking on any profile makes that profile active.

4.1.2.4 WEP

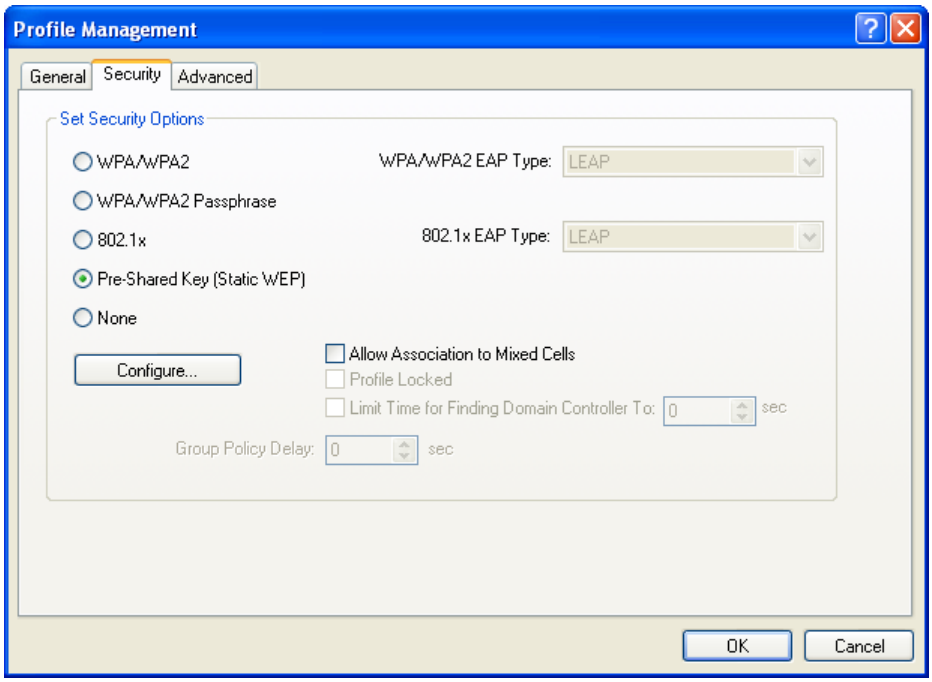


Figure 36 ACU, WEP

1. Select **Pre-Shared Key (Static WEP)** from Set Security Options.
2. Click the **Configure** button.

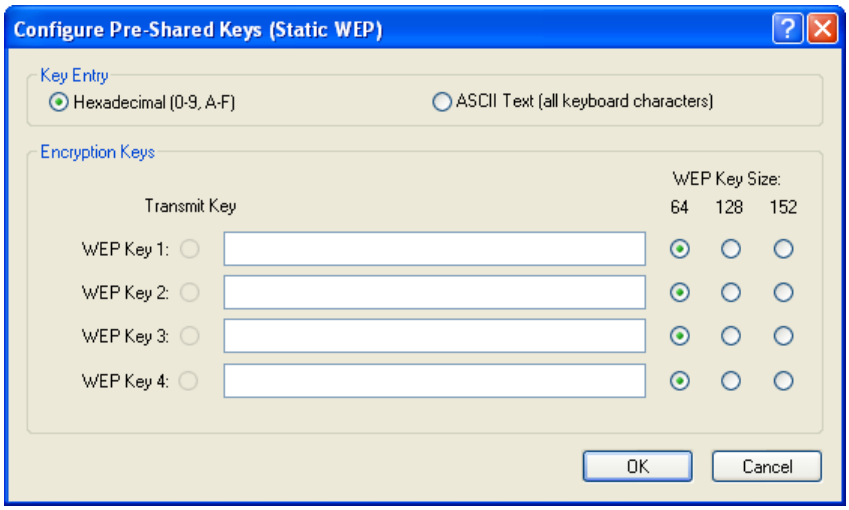


Figure 37 ACU, WEP Key

3. Enter the WEP key. The key can be in Hexadecimal or ASCII format.
4. Click **OK** to WEP keys then click OK again to save the profile.
5. Make sure the desired profile is selected on the Profile Management screen. Double clicking on any profile makes that profile active.

4.1.2.5 LEAP

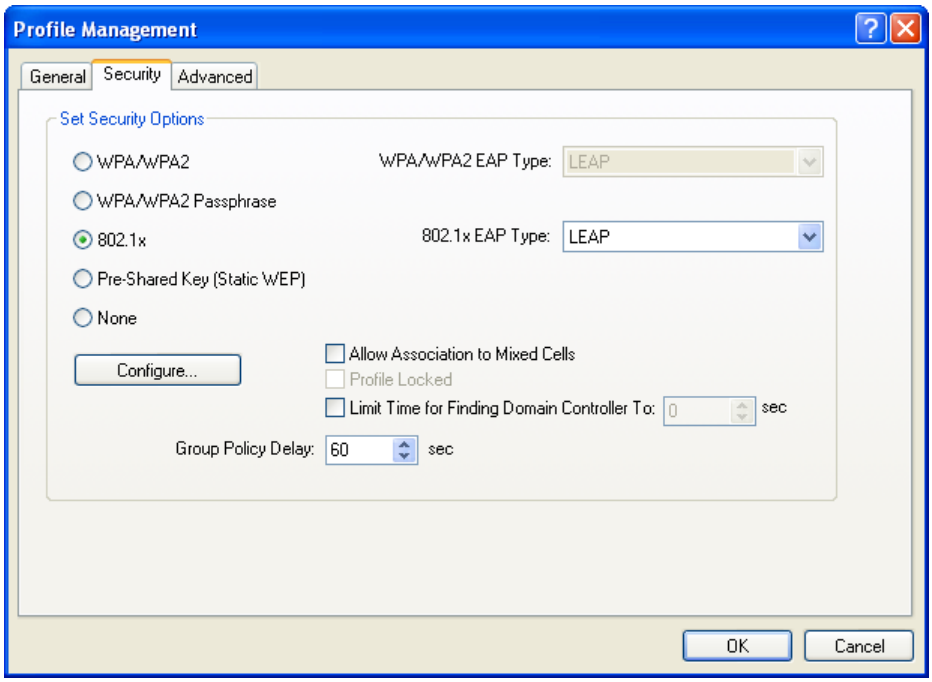


Figure 38 ACU, LEAP

1. Select **802.1x** from Set Security Options.
2. Choose **LEAP** from the 802.1x EAP Type pulldown.
3. Click the **Configure** button.

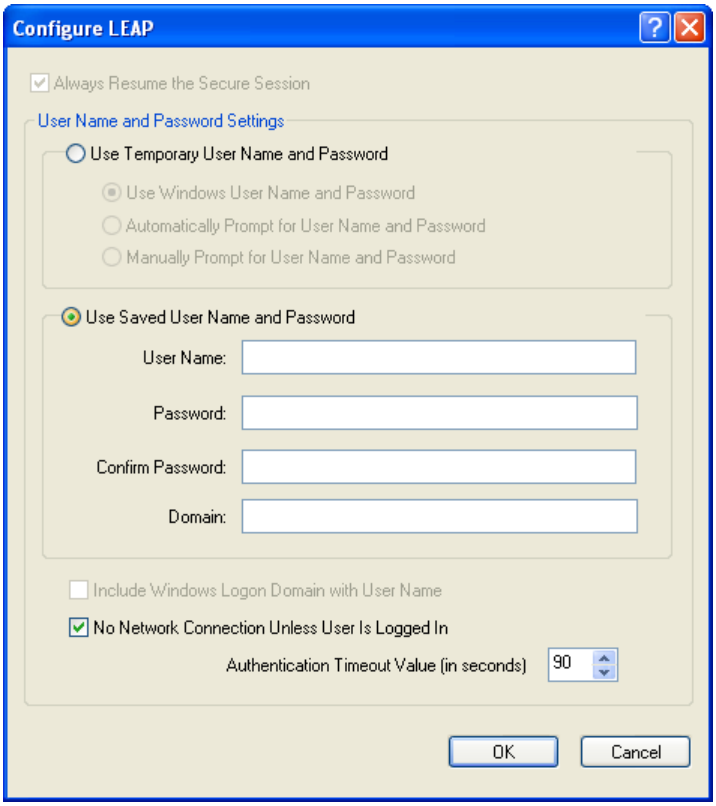

Configure LEAP
Always Resume the Secure Session
User Name and Password Settings
Use Temporary User Name and Password
Use Windows User Name and Password
Automatically Prompt for User Name and Password
Manually Prompt for User Name and Password
Use Saved User Name and Password
User Name:
Password:
Confirm Password:
Domain:
Include Windows Logon Domain with User Name
No Network Connection Unless User Is Logged In
Authentication Timeout Value (in seconds)
90
OK
Cancel

Figure 39 ACU, LEAP Credentials

4. Make sure **Used Saved User Name and Password** is selected.
5. Enter the user credentials.
6. Click **OK** to save the credential information and then click **OK** again to save the profile.
7. Make sure the desired profile is selected on the Profile Management screen. Double clicking on any profile makes that profile active.

4.1.2.6 WPA-PSK

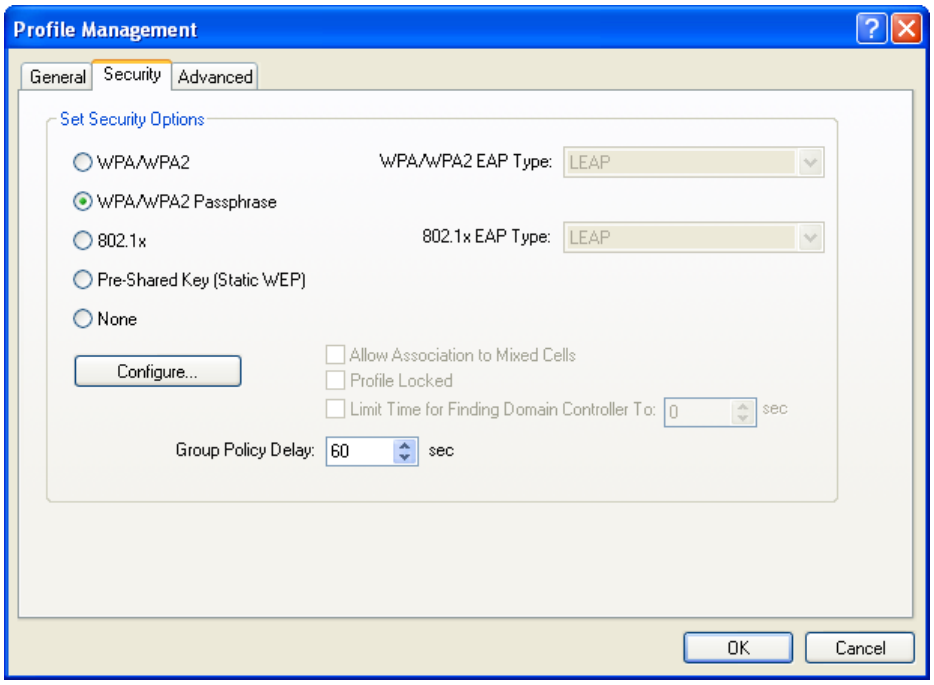


Figure 40 ACU, WPA-PSK

1. Select **WPA/WPA2 Passphrase** from Set Security Options.
2. Click the **Configure** button.

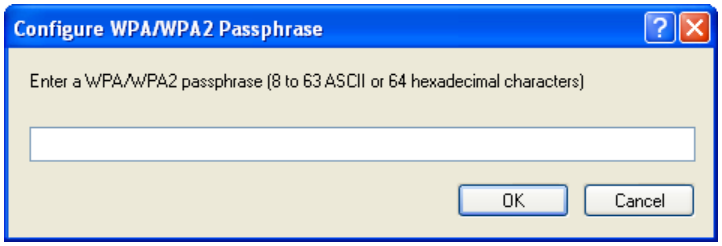


Figure 41 ACU, Preshared Key

3. Enter the passphrase.
4. Click **OK** to save the passphrase and then click **OK** again to save the profile.
5. Make sure the desired profile is selected on the Profile Management screen. Double clicking on any profile makes that profile active.

4.1.2.7 PEAP/MS-CHAP

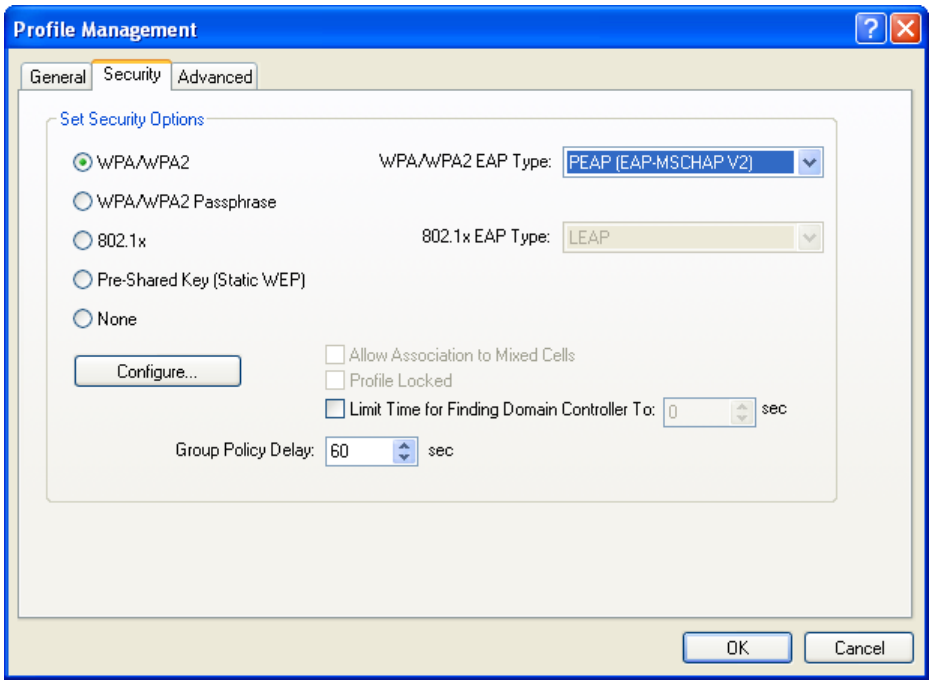


Figure 42 ACU, PEAP/MS-CHAP

1. Select **WPA/WPA2** from Set Security Options.
2. Choose **PEAP (EAP-MSCHAP V2)** from the WPA/WPA2 EAP Type pulldown.
3. Click the **Configure** button.

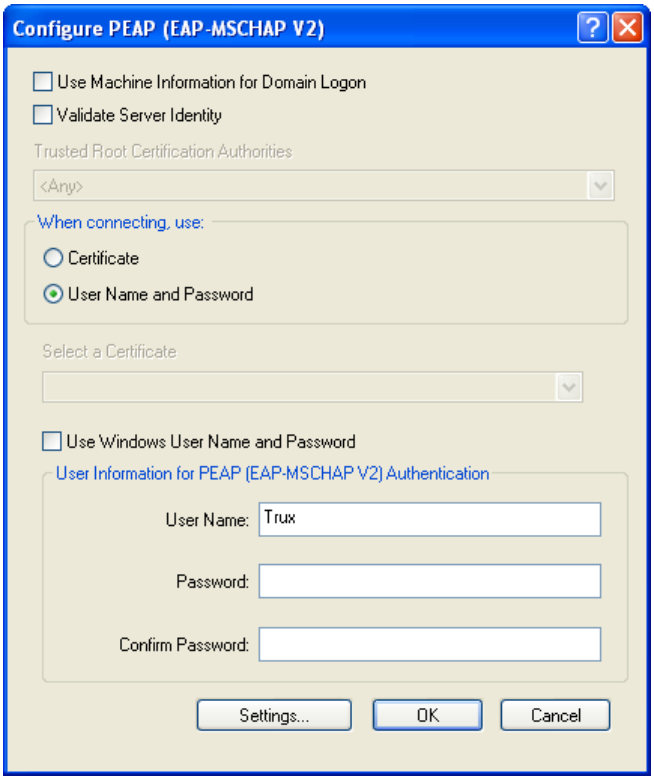


Figure 43 ACU, PEAP/MS-CHAP Credentials

4. Make sure **User Name and Password** is selected.
5. Enter the user credentials.
6. Click **OK** to save the credential information and then click **OK** again to save the profile.
7. Make sure the desired profile is selected on the Profile Management screen. Double clicking on any profile makes that profile active.

4.1.2.8 PEAP-GTC

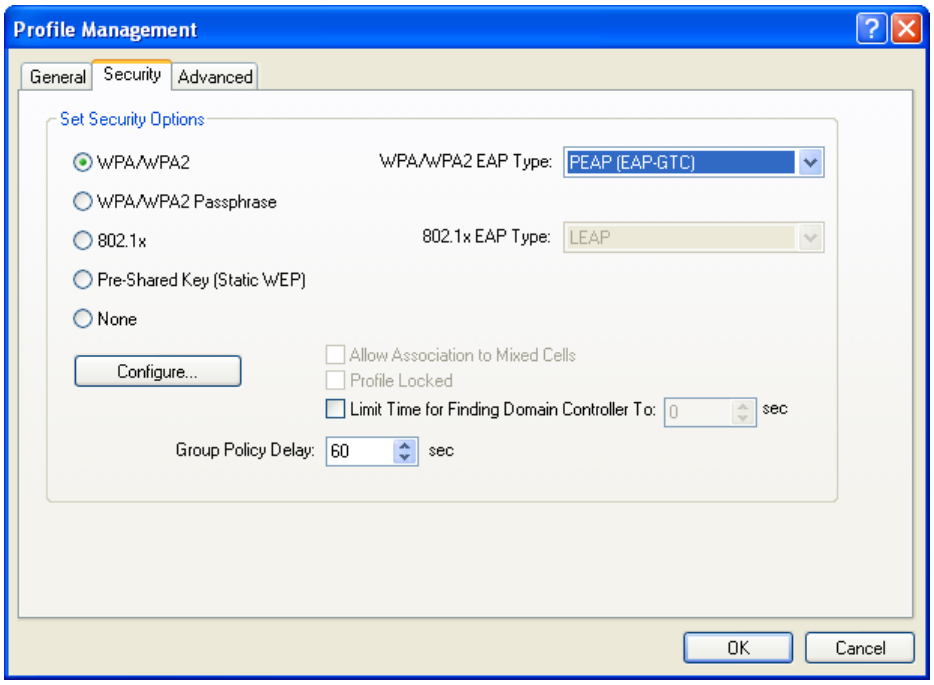


Figure 44 ACU, PEAP-GTC

1. Select **802.1x** from Set Security Options.
2. Choose **PEAP (EAP-GTC)** from the WPA/WPA2 EAP Type pulldown.
3. Click the **Configure** button.

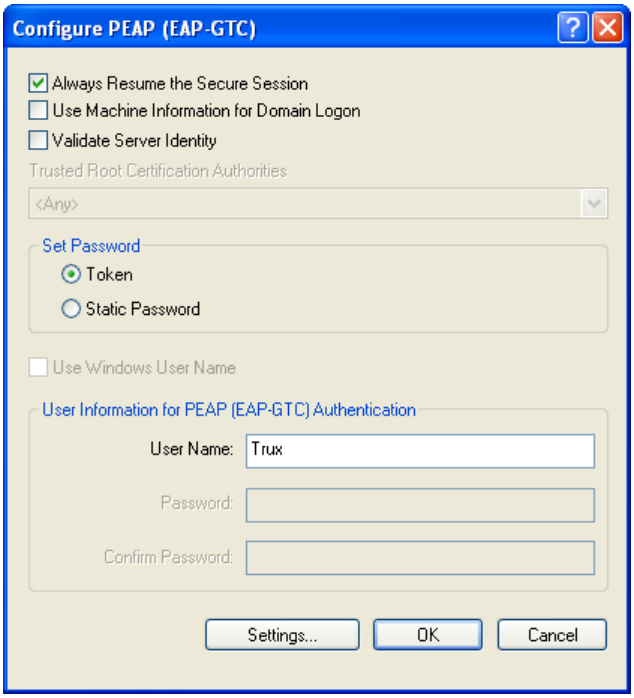


Figure 45 ACU, PEAP-GTC Credentials

4. Enter the token User Name.
5. Click **OK** to save the credential information and then click **OK** again to save the profile.
6. Make sure the desired profile is selected on the Profile Management screen. Double clicking on any profile makes that profile active.

4.1.2.9 EAP-TLS

EAP-TLS requires that appropriate server and user certificates are installed on the Trux computer. Please refer to the “Certificates” section later in this chapter for details.

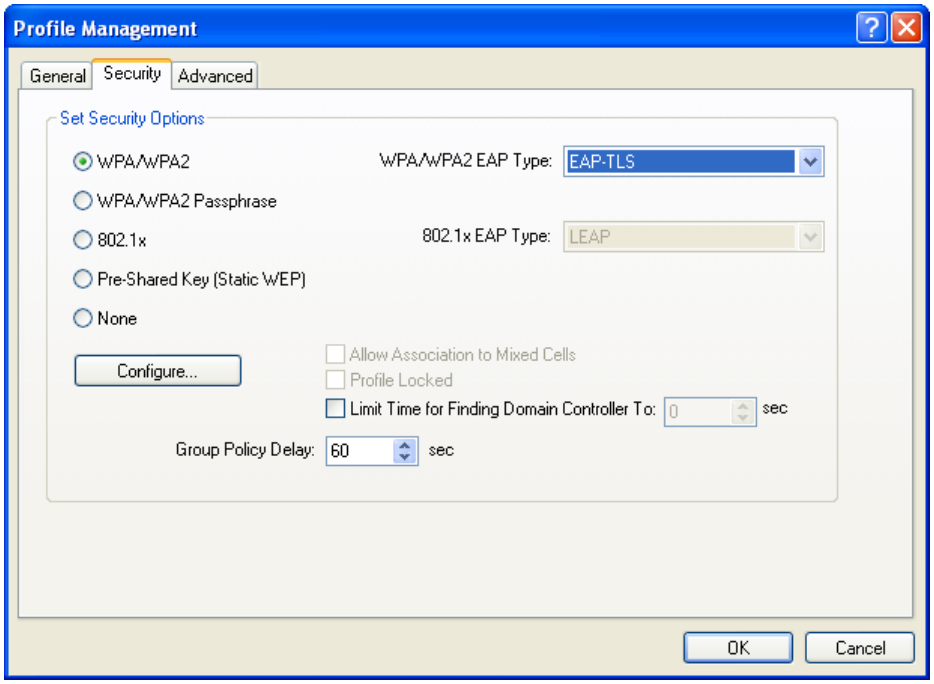


Figure 46 ACU, EAP-TLS

1. Select **WPA/WPA2** from Set Security Options.
2. Choose **EAP-TLS** from the WPA/WPA2 EAP Type pulldown.
3. Click the **Configure** button.

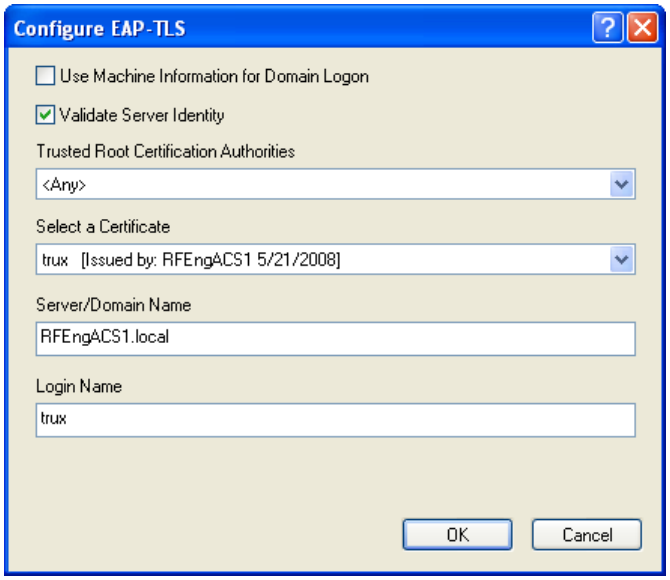


Figure 47 ACU, EAP-TLS Credentials

4. From the **Trusted Root Certification Authorities** pulldown, select the appropriate root certification authority.
5. From the **Select a Certificate** pulldown, select the appropriate user certificate.
6. Click **OK** to save the certificate information and then click **OK** again to save the profile.
7. Make sure the desired profile is selected on the Profile Management screen. Double clicking on any profile makes that profile active.

4.1.2.10 WPA LEAP

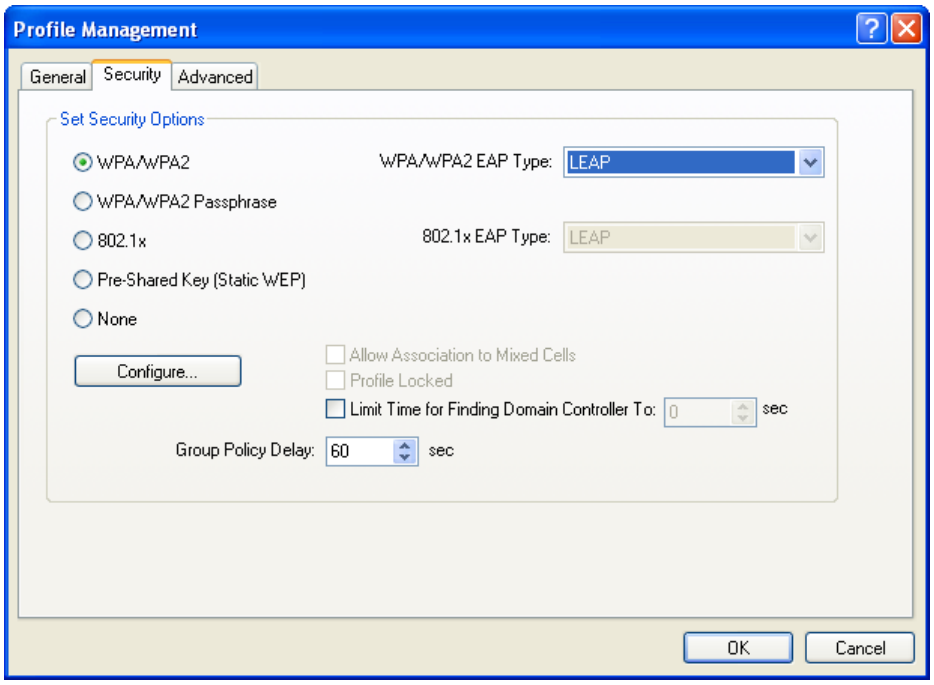


Figure 48 ACU, WPA LEAP

1. Select **WPA/WPA2** from Set Security Options.
2. Choose **LEAP** from theWPA/WPA2 EAP Type pulldown.
3. Click the **Configure** button.

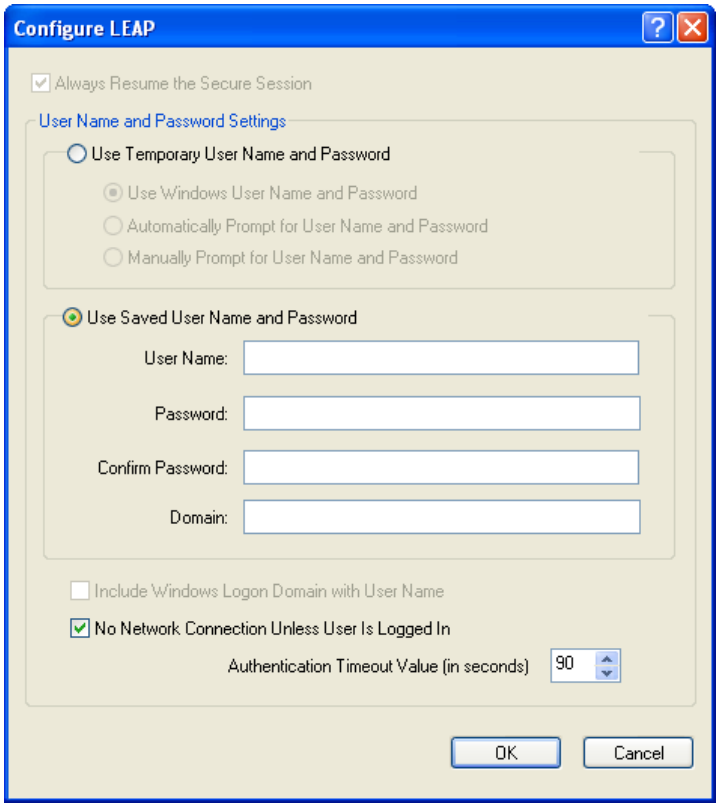

Configure LEAP
Always Resume the Secure Session
User Name and Password Settings
Use Temporary User Name and Password
Use Windows User Name and Password
Automatically Prompt for User Name and Password
Manually Prompt for User Name and Password
Use Saved User Name and Password
User Name:
Password:
Confirm Password:
Domain:
Include Windows Logon Domain with User Name
No Network Connection Unless User Is Logged In
Authentication Timeout Value (in seconds)
90
OK
Cancel

Figure 49 ACU, WPA LEAP Credentials

4. Make sure **Used Saved User Name and Password** is selected.
5. Enter the user credentials.
6. Click **OK** to save the credential information and then click **OK** again to save the profile.
7. Make sure the desired profile is selected on the Profile Management screen. Double clicking on any profile makes that profile active.

4.1.2.11 EAP-FAST

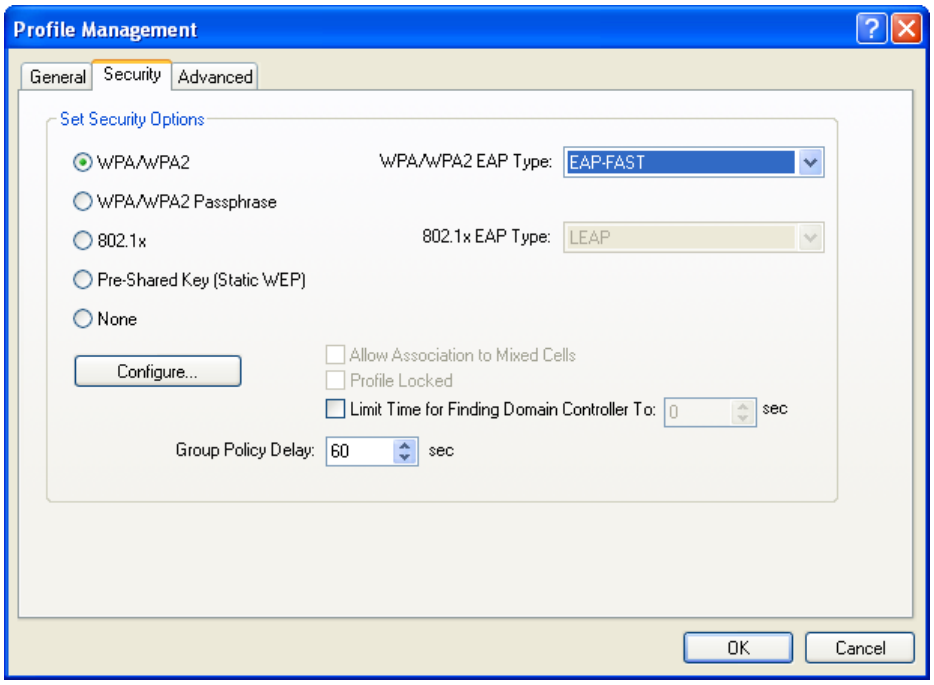


Figure 50 ACU, EAP-FAST

1. Select **WPA/WPA2** from Set Security Options.
2. Choose **EAP-FAST** from the WPA/WPA2 EAP Type pulldown.
3. Click the **Configure** button.

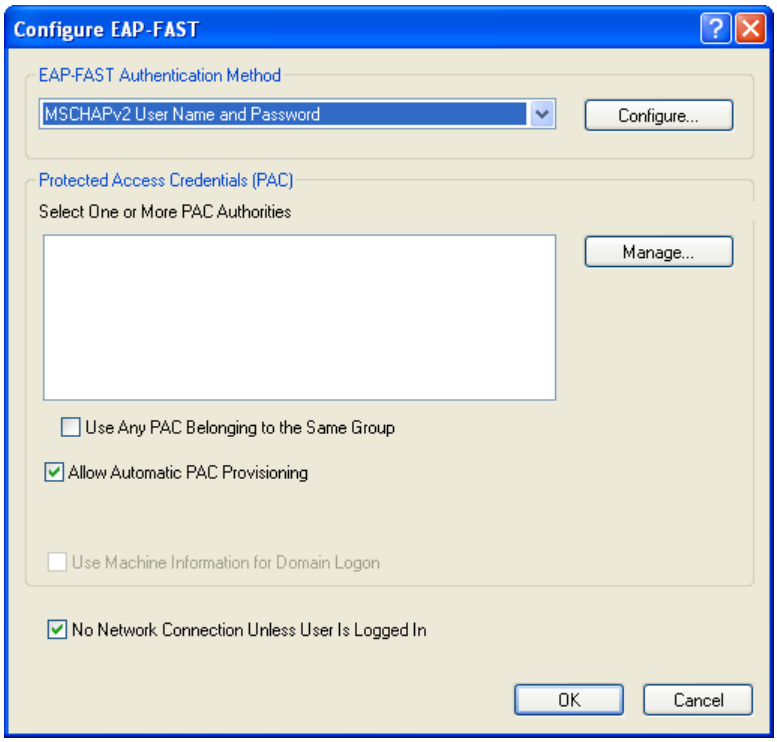


Figure 51 ACU, EAP-FAST Authentication

4. Select **MSCHAPv2 User Name and Password** from the EAP-FAST Authentication Method pulldown list.
5. Check the checkbox for **Allow Automatic PAC Provisioning**.
6. Click the **Configure** button.

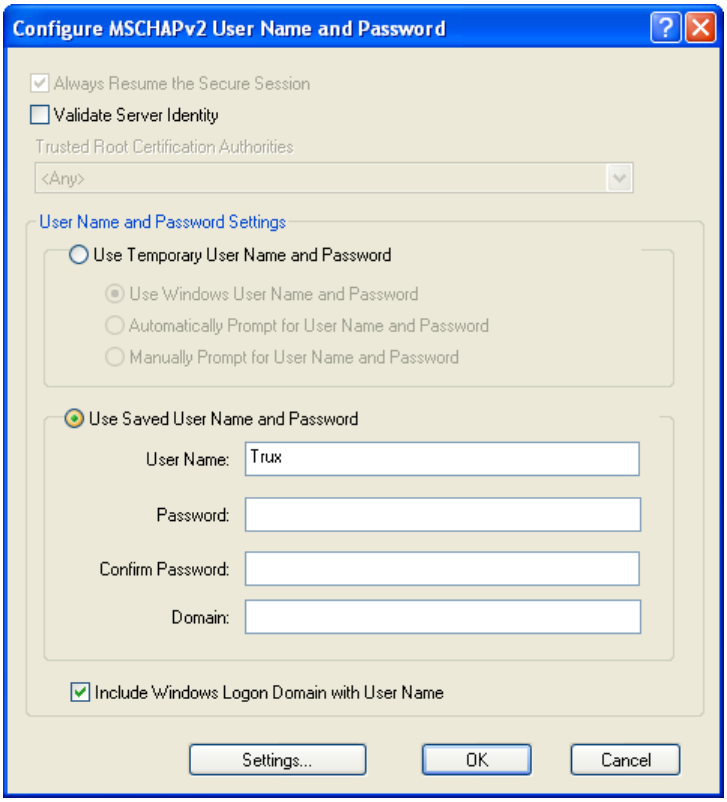


Figure 52 ACU, EAP-FAST Credentials

7. Make sure **Use Saved User Name and Password** is selected.
8. Enter the user credentials.
9. Click **OK** to save the credential information, click **OK** again to save the authentication information and then click **OK** again to save the profile.
10. Make sure the desired profile is selected on the Profile Management screen. Double clicking on any profile makes that profile active.

4.1.3 Certificates

In order to authenticate with EAP-TLS, the user needs to have the appropriate **server** and **user certificates** installed on the device.

1. Log into the Certificate Authority webpage.

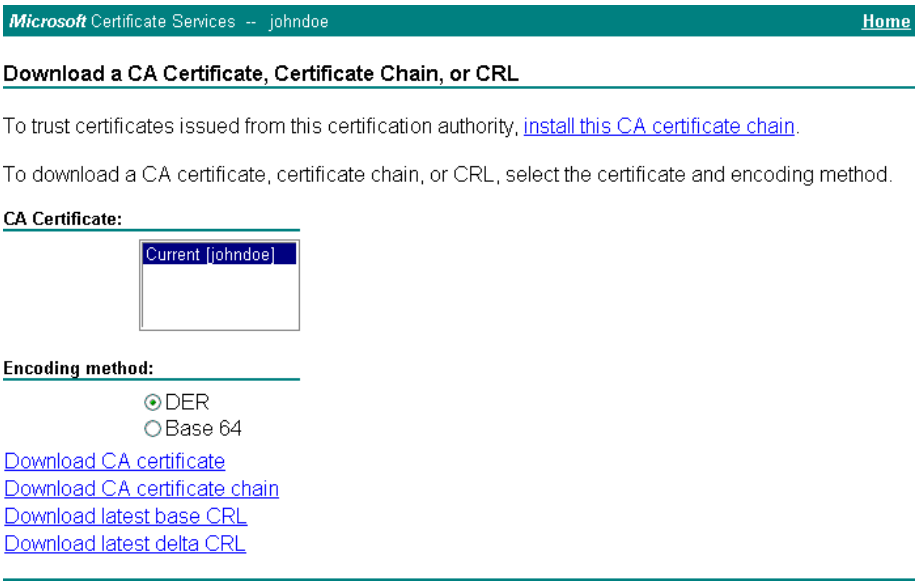

Microsoft Certificate Services -- johndoe
Home
Download a CA Certificate, Certificate Chain, or CRL
To trust certificates issued from this certification authority, install this CA certificate chain.
To download a CA certificate, certificate chain, or CRL, select the certificate and encoding method.
CA Certificate:
Current [johndoe]
Encoding method:
DER
Base 64
Download CA certificate
Download CA certificate chain
Download latest base CRL
Download latest delta CRL

Figure 53 Install Certificate Chain

2. Click on **Download a CA certificate, certificate chain, or CRL**.
3. Click on **install this CA certificate chain**.
4. Go back to the main page.
5. Click on **Request a certificate**.
6. Click on **User Certificate**.

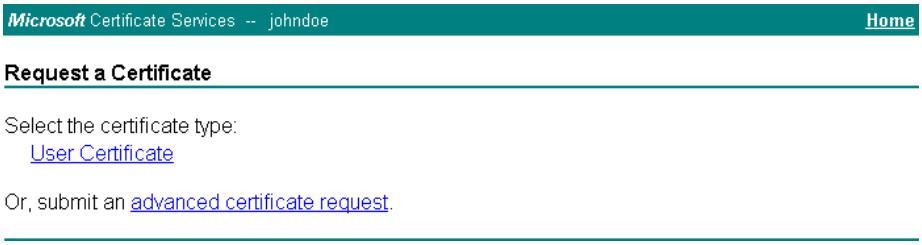


Figure 54 Request Certificate

7. Click **Submit**.
8. Click **Yes** on the pop up to request a certificate.

4.2 Bluetooth

The Bluetooth control panel can be accessed either by clicking the Bluetooth icon in the taskbar or by clicking on the Bluetooth Devices option in the Windows control panel.

4.2.1 Devices Tab

The Devices tab displays any previously discovered Bluetooth devices.

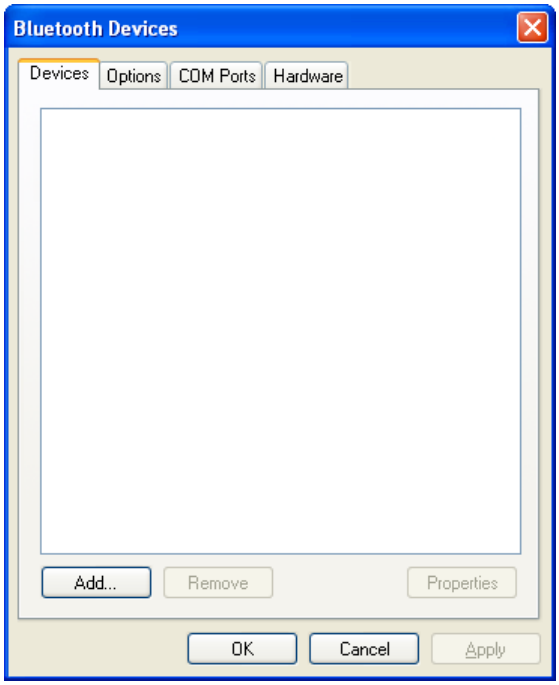


Figure 55 Bluetooth Devices Tab

If there are no Bluetooth devices shown or if the desired device is not shown, use the Add Bluetooth Device Wizard to discover Bluetooth devices.

Click the **Add** button to start the wizard.

Add Bluetooth Device Wizard
Welcome to the Add Bluetooth Device Wizard
Before proceeding, refer to the "Bluetooth" section of the device documentation. Then set up your device so that your computer can find it:
- Turn it on
- Make it discoverable (visible)
- Give it a name (optional)
- Press the button on the bottom of the device (keyboards and mice only)
My device is set up and ready to be found.
Add only Bluetooth devices that you trust.
< Back
Next >
Cancel

Figure 56 Add Bluetooth Device Wizard

The wizard cannot be started until the checkbox indicating the device is set up and ready to be found is checked.

If any Bluetooth devices are discovered, they are displayed.

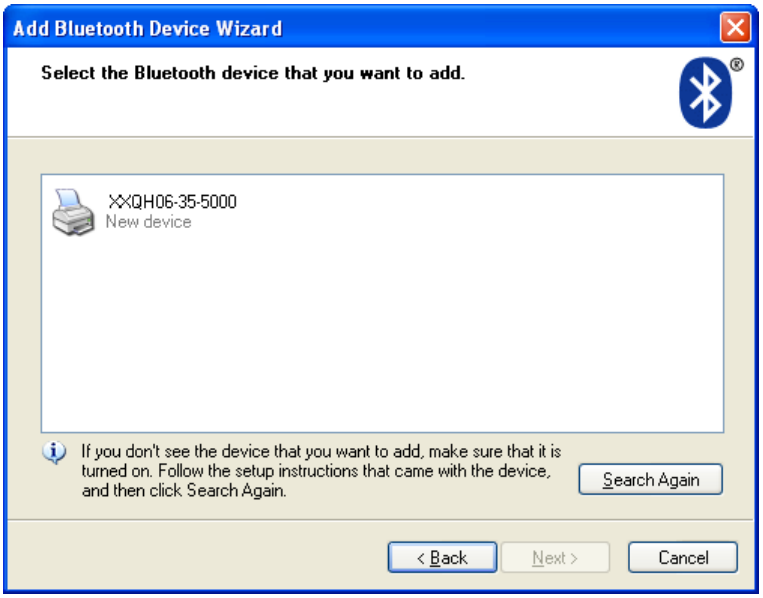

Add Bluetooth Device Wizard
Select the Bluetooth device that you want to add.
XXQH06-35-5000
New device
If you don't see the device that you want to add, make sure that it is turned on. Follow the setup instructions that came with the device, and then click Search Again.
Search Again
< Back
Next >
Cancel

Figure 57 Discovered Bluetooth Devices

Select the desired Bluetooth device and click **Next**.

Select the appropriate passkey option.

The Bluetooth device is ready to use.

4.2.2 Options Tab

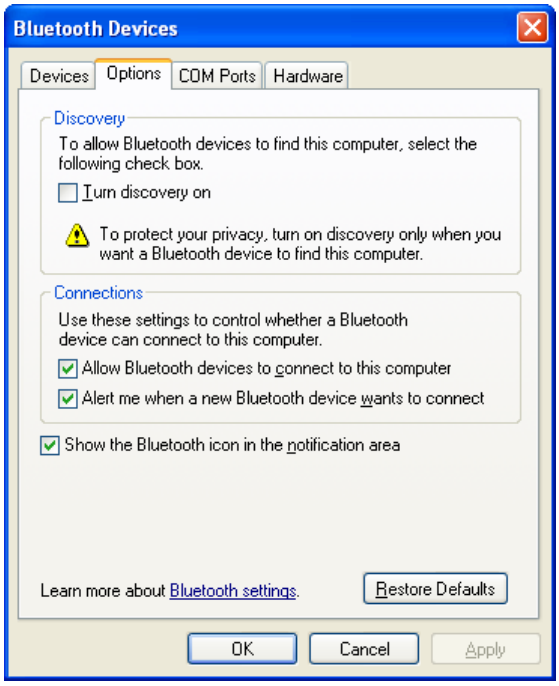

Bluetooth Devices
Devices
Options
COM Ports
Hardware
Discovery
To allow Bluetooth devices to find this computer, select the following check box.
Turn discovery on
To protect your privacy, turn on discovery only when you want a Bluetooth device to find this computer.
Connections
Use these settings to control whether a Bluetooth device can connect to this computer.
Allow Bluetooth devices to connect to this computer
Alert me when a new Bluetooth device wants to connect
Show the Bluetooth icon in the notification area
Learn more about Bluetooth settings.
Restore Defaults
OK
Cancel
Apply

Figure 58 Bluetooth Options Tab

This tab contains various Bluetooth connection options. More information can be found using the Microsoft Windows help feature.

4.2.3 COM Ports Tab

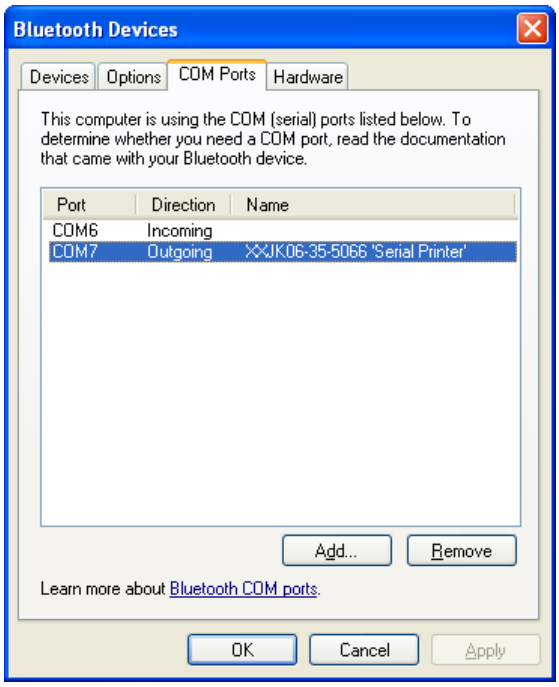


Figure 59 Bluetooth COM Ports Tab

This tab displays the COM ports used by Bluetooth devices, such as the Bluetooth printer illustrated. More information can be found using the Microsoft Windows help feature.

4.2.4 Hardware Tab

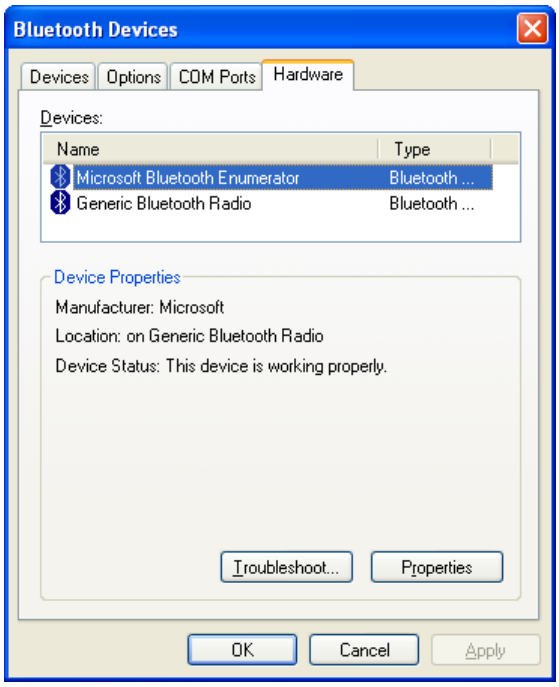


Figure 60 Bluetooth Hardware Tab

This tab hardware information for Bluetooth. More information can be found using the Microsoft Windows help feature.

4.2.5 LXE 8652 Bluetooth Ring Scanner

Use the Bluetooth Device Wizard in the Microsoft Windows Control Panel to discover and manager the Bluetooth scanner connection.

Do not use the ComponentSoft wedge software (provided with the LXE 8650 Bluetooth Ring Scanners) on the Tx700.

4.3 WAN

Check the contents of the box against the label on the packaging.

Read through these installation instructions before commencing assembly.

Connect the supply cable only when everything else has been assembled.

4.3.1 Overview

This document describes the process of inserting a SIM card into the Option GPRS/EDGE/3G PCCard of your Trux computer.

4.3.2 Requirements

In order to perform this operation you need the following:

- Torx 20 screwdriver.
- SIM card with GPRS/EDGE/3G capabilities from your network operator.

4.3.3 SIM card installation

The following procedure describes how to insert a SIM card:

1. Place the Trux upside down onto a flat clean surface.
2. Remove the service hatch by loosening the 2 torx screws.

Figure 61 Open the Trux Computer

3. Remove the antenna pigtail from the GPRS/EDGE/3G PCCard.

4. Remove the GPRS/EDGE/3G PCCard by pressing the PCCard eject button.

Figure 62 PC Card Eject Button

5. Insert your SIM card into the PCCard as shown below.

Figure 63 Install SIM Card

6. Reinsert the PCCard into the PCCard socket.
7. Reattach the antenna pigtail
8. Reattach the service hatch.
9. Start the computer
10. If you have PIN-code enabled you will be prompted to type the code at startup.

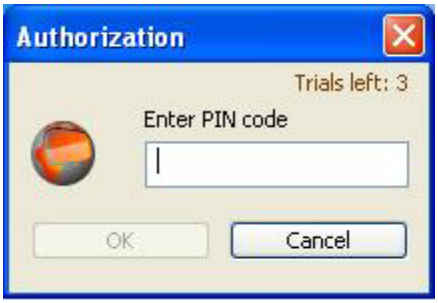


Figure 64 PIN Code Prompt

11. Double click the grey/green Option icon in the systray to launch the application

Figure 65 WAN System Tray Icon

12. For some operators the application is automatically configured for the network, if not configure the settings as advised by your local operator

Figure 66 WAN Network Configuration

13. When all settings are made press the connect button to connect to the preferred network, to disconnect, press Disconnect.

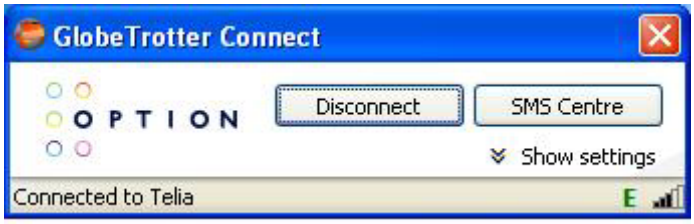


Figure 67 WAN Disconnect

5 Operating System

If it should become necessary to reload the Microsoft Windows operating system, use the instructions in the appropriate following section.

- To reload the Tx700 or Tx800 with the factory installed operating system, drivers and utilities, please follow the instructions in section 5.1 System Recovery. You must have the appropriate Recovery Media for your Trux computer. Please contact your LXE representative for details.
- To load a Tx700 or Tx800 with a user installed operating system, please follow the instructions in section 5.2 Custom OS Installations. You must have Tx700/Tx800 software drivers CD. Please contact your LXE representative for details.

5.1 System Recovery

5.1.1 Recovery Media

System recovery requires the proper recovery media. A DVD containing recovery software is available as an accessory. The recovery DVD must match the computer type (Tx700 or Tx800), operating system (Windows XP Professional or Windows XP Embedded) and storage media type (rotating hard drive or flash).

5.1.2 Recovery Process

The 'Trux Recovery Solution 2', hereafter known as TRS, is a method to restore the software on your Trux to the same state it had when it was shipped from the factory. When TRS is used on your Trux it destroys any information on your hard disk so please make sure that any information on the hard disk that needs to be preserved is backed up before using TRS.

In order to use the TRS, the following components are needed:

1. A Trux capable of booting from a USB mass storage device
2. A USB DVD player
3. A TRS DVD suitable for your combination of OS, language and Trux model

The TRS works in the following way:

1. TRS boots from the TRS DVD via USB
2. TRS executes the Trux Recovery Wizard 2.0, hereafter known as the Wizard, which guides you through the rest of the recovery process
3. TRS partitions and formats the primary disk.
4. TRS writes an OS image to the primary disk. By default the image from the TRS media is used. In order to achieve better flexibility and performance, these TRS image files can be put on a network share instead. To achieve this simply copy the .wim file found in the root on the TRS media to a shared network folder. Please note that in order to access a shared network folder from TRS you must use wired Ethernet and the RJ45 port of your Trux and not WLAN.
5. When the Wizard completes, TRS restarts the system which is now returned to its shipping state in terms of the installed OS.

5.1.2.1 Startup

1. Attach the USB DVD player to the Trux. Use the standard USB connector instead of the ‘Multi Purpose Connector’ on Trux 700.
2. Insert the TRS media into the USB DVD player
3. Start the Trux. Please note that the BIOS must configured to boot on the USB DVD player. If this is not the case please modify the boot order in the BIOS of your Trux.
4. When the Trux boots on the USB DVD player it (the BIOS) asks you to press a key in order to continue to boot from the TRS media. Please press a key when prompted to boot TRS.
5. TRS is now booted and the wizard will start

5.1.2.2 Wizard walk-through

1. The first screen shown by the wizard displays some generic and licensing information. By clicking ‘Next’ you accept these licensing terms.
2. The second screen shown by the wizard is used to gather info on how the TRS process should be performed. Select the method to be used and the source location of the OS image. By default the OS image on the TRS media is used. By pressing the button placed on the right side of the field labelled ‘Image File’ you can browse to the preferred OS image if, for instance, it has been placed on a network share.
3. The third screen shown by the wizard just lets you confirm the information gathered this far before the actual TRS process is started. When you click on the ‘Next’ button you will be asked to confirm that you want to start the TRS process, this is the last chance to abort TRS.
4. The fourth screen is shown by the wizard during the actual processing and it informs you of what is going on. This process could take quite a while, up to 30 minutes or more depending on the actual OS image, USB standard etc.
5. The last screen of the wizard shows the result of the TRS process. By clicking ‘Finish’ the wizard is closed. Then press any key to shutdown the computer. Please remove the TRS media when the system has been shutdown to avoid booting up the Trux into TRS again. You Trux has now gone through the whole TRS process.

5.2 Custom OS Installations

If desired, a user provided operating system can be installed as opposed to using the LXE supplied Recovery Media. To use this option, the user must:

- Provide their own installation source of a supported operating system (Windows XP)
- Have a valid activation key for that operating system
- Use the LXE provided drivers CD, TX89A498DRIVERS. It is recommended that the device drivers CD be available during Microsoft Windows installation and configuration. Since the Tx700/Tx800 does not have a CD-ROM drive, the device drivers can be copied to a USB jump drive or accessed via a USB CD drive. The device drivers can also be copied to a location on the network if a network connection is used to install the Windows OS

6 FreeFloat WLinq

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FreeFloat WLinq

version 3.21

What is WLinq?

WLinq is intended to replace the hardware that is often used in application where data from a barcode reader should be entered into a program on a pc. The hardware that is often used is called a *decoder* (or *keyboard wedge*).

A decoder converts the signals from a barcode reader to key presses. The decoder is connected between the keyboard and the CPU with a Y cable. By using WLinq together with a barcode reader with serial output you get rid of the decoder and the Y cable. WLinq is also easier to set up than a hardware decoder and makes advanced data editing possible.

Most barcode readers have the capability to send barcode data serially. WLinq uses this fact and is set up to receive the barcode data on the serial port the barcode reader is connected to. The received characters are converted to their corresponding keys and are then sent to the active program's window.

WLinq can be used with other types of hardware that send data serially, like for example scales.

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Frequently Asked Questions

In this topic we have gathered questions we often get about WLinq. The latest version of this FAQ is here.

When I read a barcode with 12 characters I would like to add a zero in the beginning of the text. How do I do it?
How do I do to send Home, End or similar keys?
I want to use ÅÄÖ (or other international characters) in a barcode. How do I do it?
I would like to run two WLinq's, one for COM1 and one for COM2. How do I do it?
In what order does things happen in WLinq?

When I read a barcode with 12 characters I would like to add a zero in the beginning of the text. How do I do it?

This description assumes you have made all settings in WLinq so you can get the 12 character code simulated in a program window.

1. Start WLinq if it isn't already running.
2. Click on the Settings button.
3. Click on the Data Editing tab.
4. Click on the Formats button.
5. Click on the Add button.
6. Enter the text **Twelwe to thirteen digits** in the Name edit box.
7. Enter the text **"0" + Input() + "<cr>"** in the Data Output Format edit box.
8. Click on the Add button.
9. Make sure Length is selected and that both Min and Max are set to 12.
10. Click on OK until the Data Editing Formats dialog box is displayed.
11. Move the **Twelwe to thirteen digits** format so it is placed first in the list (use the arrow buttons to the right of the list to move the selected data editing format).
12. Click on OK in all dialog boxes until the main window is displayed.
13. Test it.

How do I do to send Home, End or similar keys?

Keys in Windows that doesn't have a corresponding character (function keys, arrow keys, Home, End, and similar) are mapped to ASCII values from 128 and above. In the following example we show how the Home key can be simulated after each data string:

1. Find out what ASCII value the Home key is mapped to by studying the table Key Codes. We find that the Home key is mapped to the ASCII value 83 (Note! The codes in the table are given in hexadecimal notation.)
2. Start WLinq if it isn't already running.
3. Click on the Settings button in the main window.
4. Click on the Data Editing tab.

5. Click on the Formats button.
6. Select the Default format and then click on the Edit button.
7. Change the text in the Data Output Format edit box to **Input() + "\x83"**. \x83 is a way of expressing a character ASCII value in hexadecimal instead of writing the actual character. The character A can for example be written as \x41. When you write codes like these in the Data Output Format edit box they have to be quoted.
8. Click on OK in all dialog boxes until the main window is displayed.
9. Test it. Note that the Home key is simulated after each data string.

I want to use ÅÄÖ (or other international characters) in a barcode. How do I do it?

Mostly, international characters can't be encoded in barcodes. Thus you have to use other characters to represent them and convert them to the correct character in WLinq. An old standard for encoding the Swedish characters åäö ÅÄÖ is to use the characters }{|][\. The characters }{|][\ can the encoded in the bar code type Code 128. The example below show how you can get WLinq to generate the character å when the character } is received:

1. Start WLinq if it isn't already running.
2. Click on the Settings button in the main window.
3. Click on the Keyboard tab.
4. Click on the Character Translation button.
5. Browse down in the list until you see the character } (ASCII value 125).
6. Select the line for the character }.
7. Click on the Edit button.
8. Click in the Scan Code Tester edit box.
9. Press the key on the keyboard that generates the character å (requires a Swedish keyboard).
10. The text **dec 221 hex 0xdd** is displayed in the Scan Code Tester edit box. This means that Windows internally represents the å key with the value 221. Note! This is NOT the ASCII value for the character å. It is the keyboard scan code. On an english keyboard the same key generates the [character.
11. Write 221 in the Key Code edit box.
12. Make sure that the check boxes Active and Affected by Caps Lock are the only ones checked.
13. Click on OK until the main window is displayed.
14. Test by reading a barcode containing the } character.

What we've done above is to tell WLinq that whenever the } character is received it should be simulated by pressing the key with the keyboard scan code 221. The key with the code 221 generates the å character assuming a Swedish keyboard driver is used in Windows.

I would like to run two WLinq's, one for COM1 and one for COM2. How do I do it?

WLinq works with what we call profiles. A profile can be given a name and contains all settings you specify in the Settings dialog box. The settings are com port, the port's speed, string replacement, data editing formats and so on. Sometimes you want to use a barcode reader on one com port and some other serial equipment on another port.

A common mistake many users do when they want to use more than one profile/com port is to install WLinq several times. That won't work. Do like this:

1. Create a new profile, give it a name, for example **Scanner**.
2. Click on the Settings button, select all your settings and then click on OK in the Settings dialog box.
3. Make sure the profile **Scanner** is selected, start the Notepad program and test that the profile is working as intended.
4. Switch back to WLinq and click on **Settings**. Go to the tab **Initialization**, check the option *Start WLinq when Windows starts up*. Click on **OK**.
5. Back in the main window of WLinq, create a new profile and give it a new name, for example **Scanner2**. Click on the **Settings** button, select the settings for this profile. At least you must select a different com port or the two profiles will have a port collision.
6. Test the profile **Scanner2** in the same way you tested the profile **Scanner**.
7. Repeat step 4 except for the profile **Scanner2**.
8. Restart Windows and check that two instances of WLinq are started automatically. Also check that WLinq isn't displaying an error message about a com port being busy. Test and see if both profiles work together.

In what order does things happen in WLinq?

When WLinq receives a data string a lot of checks, replacements and conversions occur. Many users are interested in understanding the inner workings of WLinq.

Step 1 - Receive the data string from the serial port

How this is done depends on what type of Data String Termination has been selected:

Character: WLinq buffers received characters until the specified termination character is received. The default termination character is CR (ASCII 13). When WLinq receives the termination character, WLinq moves to the next step.

Timeout: WLinq buffers received characters until the serial port has been quiet for the specified period. WLinq will then treat the so far received characters as the data string and move on to the next step.

Step 2 - Conversion to uppercase/lowercase

In this step letters are converted to uppercase or lowercase according to the setting Case Setting. Note! Only A-Z and a-z are affected by those conversions.

Step 3 - String replacement

In this step string replacements are done. A string replacement consist of one or more characters that should be matched and zero or more character the matched string should be replaced with. You can have several string replacements. They are processed in the order in which they appear in the Input Data Replacements dialog box. The top-most replacement is processed first.

Step 4 - Matching the data edit format

In this step WLinq will try to find a data edit format that matches the input string. The formats are processed, beginning with the top-most one, in the order in which they appear in the Data Editing Formats dialog box. When a format is matched WLinq moves to the next step. Only one format can be matched.

Step 5 - Translation and simulation of key presses

Up to this point all data and expressions are ASCII text. In this step WLinq parses the matched data edit format's output format. Functions as Left, Mid, and Right are processed to extract parts of the data string. Please note that the string that were originally received may have been changed by operations in Step 2 & 3. This step works on the result from those operations.

Text that are to be output has to be converted from ASCII characters to key presses. The translation is done via the table Character Translation. In the table you can customize what key an ASCII character should be translated into.

If you've specified one or more window titles in the dialog box Lock Output Window, WLinq will check if the active window's title matches any of the titles before generating key presses.

Platform

The core components of WLinq consist of one .exe file and one DLL file. The DLL file is for Caps Lock handling. The name of the DLL is CapsLook.dll.

There are some extra components: WLinq Monitor and WLinq Settings Exporter are both used for troubleshooting. The WLinq File Plugin is an add-on component which enables you to have WLinq's data stored in text files instead of being simulated as keystrokes.

WLinq can be run in 32-bit Windows environments, that is Windows 95/98/ME/NT/2000/XP/XPe/2003.

Changes

Version	Change	Date
3.21	Changed the way characters in the range ASCII 32 to 126 are sent. The new way are independent of the keyboard locale of the PC.	2008-12-11
3.20	Added EAN128 support.	2007-12-03
3.19	Max com port number is now COM256. Trigging on a incorrect expression ("<") caused WLinq to exit with an assertion failure. Now a more user friendly error message is displayed instead. If password protection is enabled profiles can't be deleted.	2007-10-25
3.18	Added option for sending prefix and postfix keys before and after data (Ctrl+Shift+Alt+1 and Ctrl+Shift+Alt+2).	2007-06-25
3.17	Added logging function. Better for troubleshooting intermittent problems with configuration/data. Creates a log file that can be sent to Freefloat for analysis. Changed the static text control for OEM into a hyperlink displaying a text file with OEM information. Credits to JRTwine Software, LLC for supplying free source code for this control.	2007-03-20
3.16	Added the function Call().	2006-08-16
3.15	Fixed problem with licensing.	2006-08-16
3.14	Internal release	2006-06-01
3.13	When Visual Basic is used to send data out the com port via the WLinq message "WLinq32.SendClipboardContents" it appends two NULL characters. WLinq stripped one NULL at the end of the text before, now it strips all trailing NULLs.	2006-05-19
3.12	Added blue blinking of tray icon when hardware pin events are fired.	2006-05-04
3.11	Added the hardware pin events function.	2006-04-18
3.10	Added the messages KeyboardEvents and NoKeyboardEvents.	2006-03-13
3.9	Added the messages Unsubscribe and SubscribeExclusively.	2005-12-05
3.8	Added a new clipboard type: "WLinqBinary". It enables the possibility to send binary data to the com port via the message "WLinq32.SendClipboardContents". Added handling of multiple terminator characters/string. It is now possible to use for example "<cr>","<etx>" if you want both <cr> and <etx> to be terminators of the input data string. Intercharacter delay is now inter-key delay. If an intercharacter delay is set, a pause is now made between each physical key simulated. This was done to circumvent a bug in Terminal Services which lost keypresses if they were sent too fast.	2005-11-23
3.7	The port was not opened at startup. Fixed.	2005-01-17
3.6	Added the function SubStr(). Fixed the Hide on startup option.	2004-12-07

3.5	Using SetProfile verb when WLinq's window was hidden caused the active window to lose focus. The data string terminator can now be more than one character. There were some minor problems with scanners using cr/lf as their terminator. The Initialization String was sent twice at startup. This error is only present in v3.4.	2004-09-08
3.4	Added the File Plugin component. Licensing support added for multiple network cards. WLinq Monitor did not work on Windows 98, fixed. A small side-effect of the fix is that if a subscriber quits, WLinq does not go back to keyboard simulation mode. The help window is no longer modal to the WLinq window. The WLinq window now appears in the Taskbar when the Register dialog is displayed. This makes it easier to switch to and from the Register dialog. When logged in as a user with read-only access, it is possible to switch profile (but not create or change). WLinq is now installed under the All Users shell context so an admin can install and configure WLinq and the user can start WLinq from the Start menu. When WLinq was started automatically via the option "Start WLinq when Windows starts up", pressing F1 to bring up the help file did not work. Fixed.	2004-08-18
3.3	Added translation of "<control character name>" and "<\xNN>" in the match expression for data editing formats.	2004-05-03
3.2	Removed an internal dependency of a communication class because it caused problem with a virtual serial port driver that couldn't handle the port speed of 1200 bps. Added extra verification of argument to the function Mid(). Changed the licensing model. The real and demo versions are now the same (running the real version in unregistered mode).	2004-01-30
3.1	Added the functions RunApp(), WaitForAppExit(), WaitForWindow(), SetFocus(), OpenPort(), ClosePort(), and SendData() in the data output format. When WLinq is run by a user, that does not have write permission in the registry where WLinq saves its settings, the Settings buttons in the main window is deactivated. This is to avoid confusion.	2003-04-30
3.0	Major changes: • Faster and smaller installation program. • Added the option Start WLinq when Windows starts up. • WLinq Monitor, a tool that can be used to troubleshoot installations. This program displays	2002-11-14

	what is going on in WLinq (input data, string replacements, data editing format, key simulations etc.) • WLinq Settings Exporter, a small tool with which you easily can export WLinq's settings to a text file. Makes support easier. • Changed the key translation table so it can be customized also when used with Citrix clients. Minor changes: • When using the edit box Scan Code Tester the value is automatically put into the edit box Key Code. • There is now an alias for the Delay function in the data output format. It is called Sleep.	
2.10	Added the Duplicate String Filter function. Added an alternative way for WLinq to send data to an application. On the property page Keyboard it was possible to get two identical error messages if you entered an invalid value in the edit box Inter-character Delay. Fixed.	2002-06-17
2.9	On startup, WLinq erroneously sent a linefeed character (ASCII 10) out on the serial port despite that *Initialization String* was empty. Certain barcode readers interpret this as garbage data and can't interpret the command correctly.	2002-04-03
2.8	The function Hide window on incoming data did not work. This error was caused by changes in version 2.5. Added a lite version. In the lite version all data editing functions has been removed.	2001-11-20
2.7	The qualifier keys Shift, Control and Alt did not work in Windows 9x/ME. This had the effect that characters that needed any of the qualifiers did not work. This fault is present in version 2.5 and 2.6. Another problem was found and corrected. It had to do with the Caps Lock keyboard indicator. This was also a problem only in Windows 9x/ME. The process of reading the settings from the registry has been made a lot stricter and when errors occur very specific error messages are displayed. Hopefully this will ease troubleshooting and support. Added the topic Frequently Asked Question.	2001-10-19
2.6	Added the functions Reboot() and RebootForced() in the output data format.	2001-09-10
2.5	Added password protection so that users can't change the settings or exit WLinq. Added the possibility to specify a timeout as a data string terminator. Added <tab> as an alias to <ht>. Added control of the signals DTR and RTS. Added control of the extended status per key to enable to send a normal Enter and Enter on the numeric keypad. A very small memory leak was fixed. A cosmetic improvement in the dialog box Lock Output Window.	2001-08-08

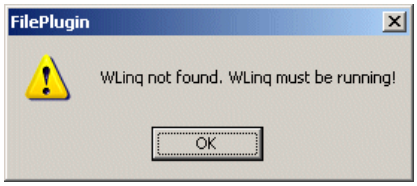
	Fixed a bug that showed itself when running more than one instance of WLinq and then exited them in a certain order.	
2.4	To solve a problem with older Citrix clients (tested on 4.20.741), hardware scan codes were added to the characters/keys with the ASCII values 32 to 127, tab, backspace, shift, control, and alt.	2001-05-07
2.3	The default profile now contains a data editing format whose single criteria matches all strings. The data output format is set to `Input() + "<cr>"`. Corrected some missing translations in the English help. Added some output data string samples in the help.	2001-04-26
2.2	WLinq stores the setting profiles in the registry under the key HKEY_LOCAL_MACHINE. Earlier, WLinq required write-access and could not read in the setting profiles if a user, that had no write rights to HKEY_LOCAL_MACHINE, was logged in.	2001-04-06
2.1	Translated help to English.	2001-01-31
2.0	A major update: • Configurable translation table used for converting characters to key codes. • String and character replacement. • Data editing formats. • Function for locking output window. • Context-sensitive help. • The tab Special has been removed since it isn't needed any more.	2001-01-18
1.9	Internal version.	2000-10
1.8	Caps Lock support.	2000-08-22
1.7	Never released. Change in project-specific data editing.	2000-08-16
1.6	Yet another project-specific data editing.	2000-08-11
1.5	Project-specific data editing.	2000-06-11
1.4	A change was made so that the internal conversion table so that ASCII 29 (GS, group separator) generates the character "&". Used in EAN128 codes. Function for sending data back to the hardware equipment connected to the serial port.	2000-05-16
1.3	Smaller changes in the program.	2000-05-15
1.2	Support for different profiles. Initialize string and some other stuff.	1999-06-28
1.1	Serial buffer fix.	1999-02-12
1.0	New version for Win32.	1998-11-16

File Plugin

When you start the File Plugin it subscribes to WLinq's data strings. WLinq stops simulating keystrokes, instead the File Plugin stores each data string in a separate text file.

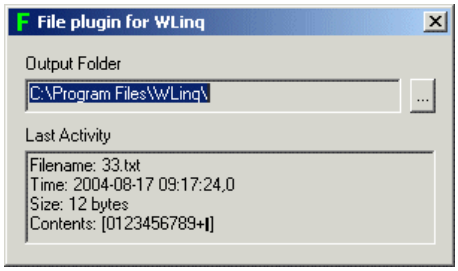
The files are stored in the folder selected in the File Plugin. The files are named 1.txt, 2.txt and so on. No files are overwritten.

If you start the File Plugin when WLinq isn't running you get the following message:



Make sure you start WLinq before starting the File Plugin.

The File Plugin looks like this:

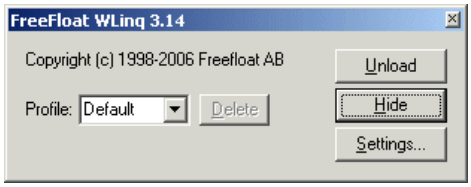


File name, date, time, size, and contents of the last string received from WLinq is displayed.

If you click the button with three dots, you can select the folder where the text files are created.

The Main Window

When you start WLinq, the program's main window is displayed:



Profile
Display the currently active profile. To create a new profile, click in the edit box and enter the name of the new profile. Then click on the *Settings* button to customize the settings of the profile. You can automatically select a profile WLinq should use on startup by adding the profile name as an command line argument to program in the shortcut you use to start WLinq. For example: "*C:\Program\WLinq\WLinq.exe x*" where x is the name of the profile.

Delete
Deletes the active profile. The profile *Default* can't be deleted.

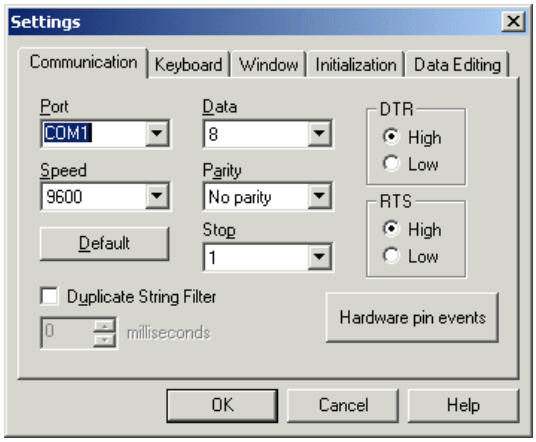
If password protection is enabled, profiles can't be deleted until password protection is turned off.

Unload
Quits the program.

Hide
Hides the main window. WLinq is a program you normally want to run in the background. You can manually hide the window by using this button. The close button (☒) has the same effect as the *Hide* button. So has the Escape key.

Settings
Displays the dialog box *Settings*, where you customize the active profile.

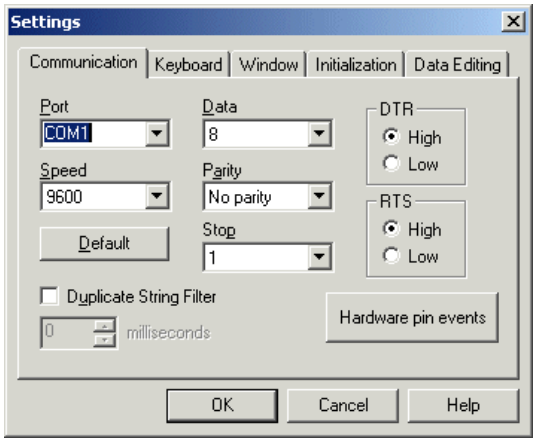
Settings – dialog box



This dialog contains the tabs *Communication*, *Keyboard*, *Window*, *Initialization* and *Data Editing*.

On the different tabs you can customize the settings for the currently active profile. WLinq store the profiles in the Windows registry.

Communication – tab



On this tab you specify which serial port WLinq should use and the settings of the serial port.

Port
Specifies the serial port WLinq receive data from.

Speed
Specifies the speed in bps (bits per second).

Data
Specifies the number of data bits per character.

Parity
Specifies the data parity.

Stop
Specifies the number of stop bits.

DTR
Specifies the level of the DTR (*Data Terminal Ready*) signal. Used in combination with RTS to signal status (handshaking) to equipment connected to the com port. Certain kinds of hardware requires that the DTR and RTS are high before any communication will take place. The communication speed of certain special hardware are configured by different settings of DTR and RTS.

RTS
Specifies the level of the RTS (*Request To Send*) signal.

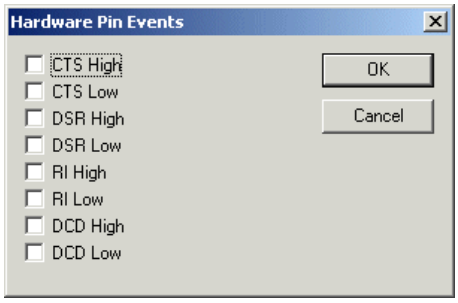
Default
Resets the serial port to COM1 and its settings to 9600, 8, No parity, 1, DTR=High, RTS=High.

Duplicate String Filter
Specifies whether WLinq should filter duplicate data input strings. If this setting is active, WLinq will check the received data input string and if it is the same as the previous data input string and the specified time hasn't elapsed, the string will be filtered (removed).

Hardware Pin Events
Configure serial port hardware signals to generate events.

Note! The hardware you connect to the serial port must be set to use the same speed, data bits, parity, and stop bits.

Hardware Pin Events – dialog box



In this dialog you configure which changes on the serial port handshake signals that should generate events.

The signals that are monitored are CTS, DSR, RI, and DCD. A string can be sent when the signal goes high or when it goes low or for both types of change.

For each type of change and signal, a certain string is generated:

Signal and Change	**String**
CTS High	[CTS_HIGH]
CTS Low	[CTS_LOW]
DSR High	[DSR_HIGH]
DSR Low	[DSR_LOW]
RI High	[RI_HIGH]
RI Low	[RI_LOW]
DCD High	[DCD_HIGH]
DCD Low	[DCD_LOW]

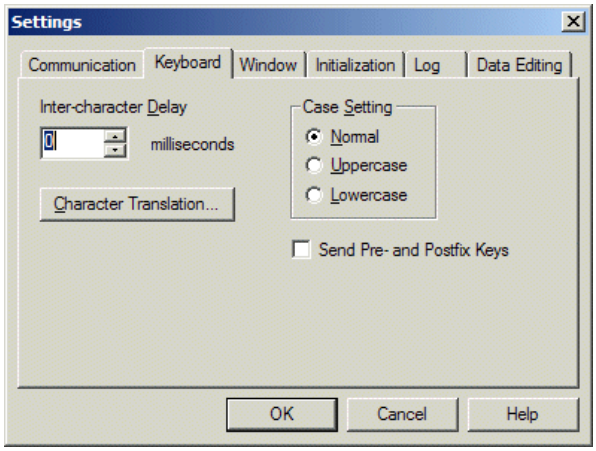
You can use the string to trigger a data editing format or use a string replacement to specify the output you want when the change happens.

Example

Let's say you want WLinq to send the text "CTS went high" when the signal CTS goes high. Click on the *Hardware Pin Events* button on the *Communication* tab and check the *CTS High* box. Click on *OK*.

Now select the *Data Editing* tab and then on the *Replacements* button. In the box *Search for*, enter `"[CTS_HIGH]"` (do not include the quotes) and in the box *Replace with*, enter `"CTS went high"`.

Keyboard – tab



On this tab you can adjust various settings that affect how WLinq simulates key presses.

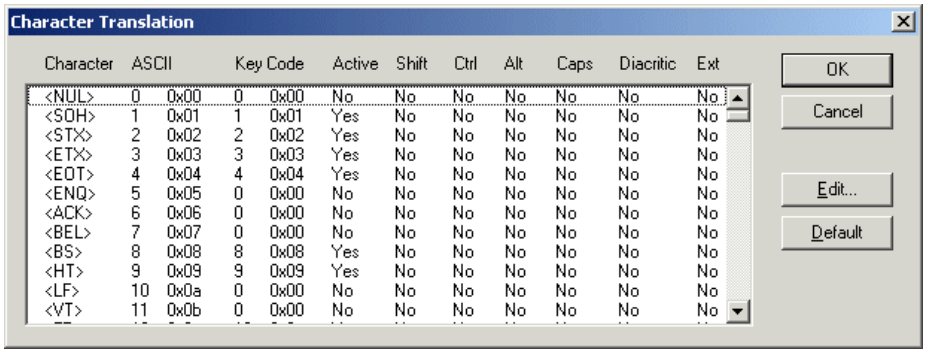
Inter-character Delay
Specifies how long the delay between each key press should be.

Character Translation
Displays the dialog box *Character Translation*.

Case Setting
Specifies how letters are handled. If set to *Normal*, the letters are passed through with no special conversion. For example, if the string aBc is received, WLinq simulates the key presses so aBc will be entered in the active program. If set to *Uppercase* the string aBc will be simulated as ABC and if set to *Lowercase* the string will be simulated as abc. Please note that this is independent of the current Caps Lock setting.

Send Pre- and Postfix Keys
Specifies whether WLinq should send a prefix key before data is output and a postfix key after data is output. The prefix key is Ctrl+Shift+Alt+1 and the postfix key is Ctrl+Shift+Alt+2. This option can be used in applications customized to recognize when a string is sent from WLinq (barcode reader or similar).

Character Translation – dialog box


Character Translation
Character ASCII Key Code Active Shift Ctrl Alt Caps Diacritic Ext
<NUL> 0 0x00 0 0x00 No No No No No No No
<SOH> 1 0x01 1 0x01 Yes No No No No No No
<STX> 2 0x02 2 0x02 Yes No No No No No No
<ETX> 3 0x03 3 0x03 Yes No No No No No No
<EOT> 4 0x04 4 0x04 Yes No No No No No No
<ENQ> 5 0x05 0 0x00 No No No No No No No
<ACK> 6 0x06 0 0x00 No No No No No No No
<BEL> 7 0x07 0 0x00 No No No No No No No
<BS> 8 0x08 8 0x08 Yes No No No No No No
<HT> 9 0x09 9 0x09 Yes No No No No No No
<LF> 10 0x0a 0 0x00 No No No No No No No
<VT> 11 0x0b 0 0x00 No No No No No No No
OK
Cancel
Edit...
Default

The list displayed in this dialog is the translation table. The translation table is used for converting characters to key codes. By customizing the translation table, special keys and international characters can be assigned to certain character values.

The translations that has been modified is marked with an asterisk.

There are 256 translations in the table, one for each possible character value. In the table below the different columns in the list are described.

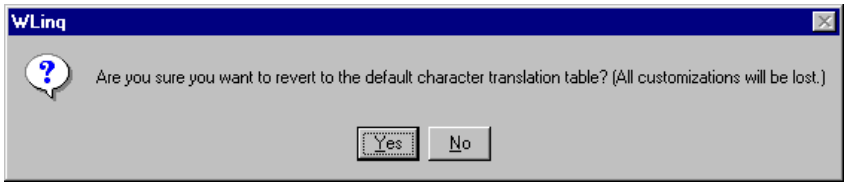
Column	Description
Character	The character the translation is for. For the characters with ASCII values between 0 and 31 the names of the control characters are displayed. This is because control characters can't be represented as symbol.
ASCII	The ASCII value of the character. Both decimal and hexadecimal.
Key Code	The key code the character is translated into.
Active	Specifies whether the translation is active or not. The characters that doesn't have an active translation is filtered and doesn't generate any key presses.
Shift	Specifies if the Shift key should be used in combination with the basic key code (*Key Code*).
Ctrl	Specifies if the Ctrl key should be used in combination with the basic key code (*Key Code*).
Alt	Specifies if the Alt key should be used in combination with the basic key code (*Key Code*).
Caps	Specifies if the character/key is affected of the Caps Lock key. This is only used for letter keys.
Diacritic	Specifies if the key is a so called dead key. See *Edit Character Translation* for more information.
Extended	Specifies if the key should have extended status set.

To customize a translation, select it in the list and then click on the *Edit* button. The dialog box *Edit Character Translation* is displayed.

The *OK* button confirms any changes you've made in the translation table. The *Cancel* button cancels any changes.

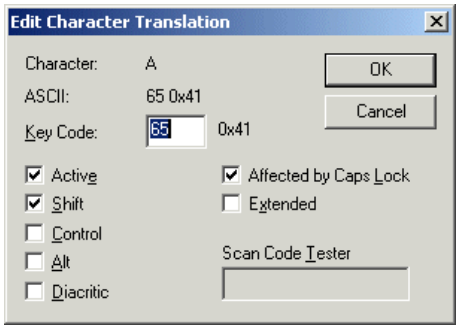
Tip! You can quickly jump to a customized translation by clicking in the list and then writing the asterisk character (*).

When you click on the *Default* button you get the following question:



Click on *Yes* if you want to reset the translation table to its default setting. Please note that all customizations of the table will be lost.

Edit Character Translation – dialog box



This dialog box displays the settings for the translation you selected before you clicked the *Edit* button in the dialog box *Character Translation*.

Character
The character or the name of the control character.

ASCII
The character's ASCII value. Both in decimal and hexadecimal.

Key Code
Here you enter the key code the character should be translated to. You should enter the key code in decimal. The key code is dynamically converted and displayed in hexadecimal notation to the right of the key code input box.

Active
Specifies whether this translations should be active or not.

Shift, *Control, and Alt*
Specifies whether these keys should be used in combination with the key code. Example: The translation for the exclamation sign (!) has the key code corresponding to the key marked with a one and an exclamation sign. Up to the left on the keyboard. But to generate an exclamation sign the Shift key has to be pressed and held down before the key is pressed.

Affected by Caps Lock
Specifies if the key is affected by the Caps Lock setting. Example: The character A is normally (Caps Lock=off) generated by pressing the Shift key and then the A key. But if Caps Lock is on then a lower case a will be generated. The A key is affected by the Caps Lock setting and needs to have the check box *Affected by Caps Lock* checked. If not, the character generated will depend on the Caps Lock settings which mostly is an unwanted effect.

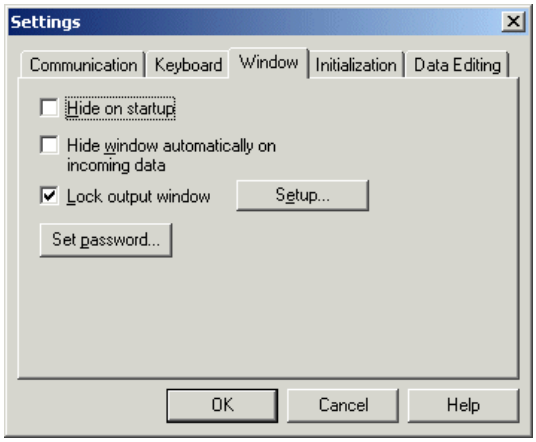
Diacritic
Specifies if the character is a so called dead key. For example, on a Swedish keyboard there are two dead keys. These are the keys with which one writes the characters ¨^~´`. If you check *Diacritic* an extra space is simulated so the diacritic character alone is generated. Otherwise the diacritic key is used in combination with the next key pressed/simulated. (by pressing ¨ and then O generates the character Ö).

Extended
Specifies if the key is an extended key. For example, the Return key and the Enter key on the numeric keyboard has the same key code. The thing that differs between them is that Enter is an extended key.

Scan Code Tester
If you click in this box and then presses a key on the keyboard, the key code for the key will be displayed. The code is displayed in both decimal and hexadecimal notation. This does not work for certain characters. For example, the Escape, Return and Tab key and some other special keys won't work because they are special system keys or used for navigating in the GUI. See *Key Codes* for a list of key codes.

Click on *OK* to confirm any changes you've made or click on *Cancel* to cancel any changes.

Window – tab



On this tab you can customize how WLinq's window behaves and what windows key presses should be sent to.

Hide on startup
Specifies if you want WLinq's main window to be hidden on startup.

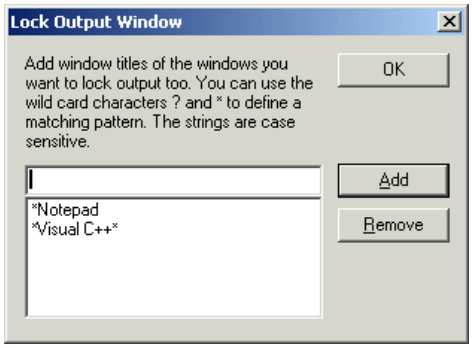
Hide window automatically on incoming data
If this box is check the main window will be hidden when data is received on the serial port.

Lock output window
If this box is check and you specify one or more window titles in the dialog box *Lock Output Window* key presses will only be sent to the active window if the window's title matches any of the specified window titles.

Setup
Displays the dialog box *Lock Output Window*.

Set password
Displays the dialog box *Set password*.

Lock Output Window – dialog box


Lock Output Window
Add window titles of the windows you want to lock output too. You can use the wild card characters ? and * to define a matching pattern. The strings are case sensitive.
OK
Add
Remove
*Notepad
Visual C++

Here you can specify one or more window titles. WLinq tries to match the window titles against the window title of the active program. If any title is matched then WLinq will send key presses to the window. But if none of the specified titles matches the title of the active program's window, no key presses will be sent to the window.

You can use the wild card characters * and ?. * matches zero or more characters. ? matches exactly one character. The expression "*Notepad" matches window titles that end with "Notepad", for example "Untitled - Notepad". It is necessary to be able to use these kind of expressions if a program uses the current document name as part of its window title.

You add a new window title by entering it in the edit box and then clicking the *Add* button. You delete a window title by selecting it in the list and then clicking on the *Remove* button.

Click on *OK* when you're finished.

Set Password – dialog box

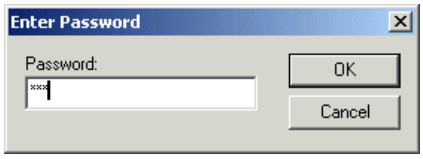
In this dialog box you can specify a password. The password is used to stop unauthorized users from changing the settings or quitting WLinq. In other words a function for decreasing the need for support after installation.

To remove password protection, leave the box *Password* empty and click on *OK*.

When you've specified a password, the dialog box Enter Password will be displayed the next time you click on the button *Settings* or *Unload* in the main window.

Click on *OK* when you've specified a password.

Enter Password – dialog box

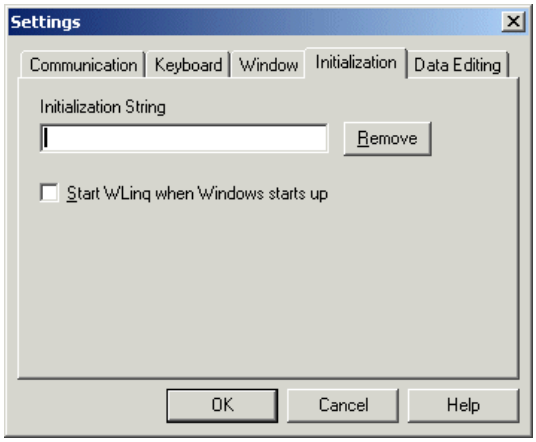


This dialog box is displayed when you click on the button Settings or Unload in the main window when password protection is active. You should enter the correct password.

If you enter the wrong password, you can't quit WLinq or change the settings.

Click on *OK* when you've specified the password.

Initialization – tab



Initialization String
The string specified here will be sent out on the serial port when WLinq starts. This might be useful if the hardware connected to the serial port need some kind of start command before it starts working.

You can click on the *Remove* button to empty *Initialization String*.

Start WLinq when Windows starts up
If you check this box WLinq will be started (with the current profile) when Windows is started. You can check this box for more than one profile, just make sure the profiles user different com-ports.

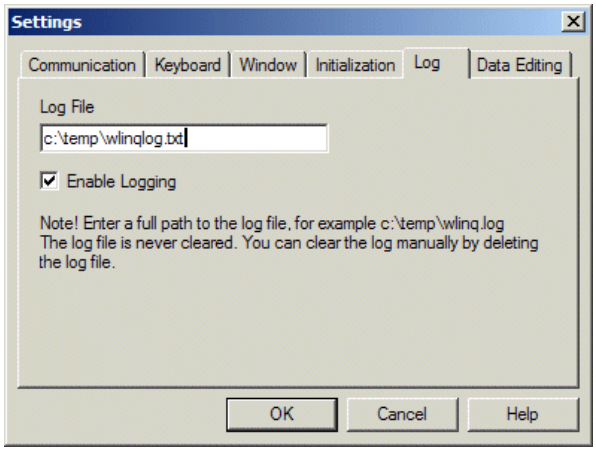
For administrators: *Start WLinq when Windows starts up* creates a key under HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Run which is used for all users that logs on to the pc. Any keys created by this function will be removed when uninstalling.

Tip! In Windows NT's file BOOT.INI you can add the option `/NoSerialMice`. Then Windows NT won't scan for mice on the serial port. The scanning confuses certain types of hardware. Example:

```
[boot loader]
timeout=3
default=multi(0)disk(0)rdisk(0)partition(1)\WINNT35

[operating systems]
multi(0)disk(0)rdisk(0)partition(1)\WINNT35="Windows NT Workstation
Version 3.51" /NoSerialMice
multi(0)disk(0)rdisk(0)partition(1)\WINNT35="Windows NT Workstation
Version 3.51 [VGA mode]" /basevideo /sos /NoSerialMice
```

Log – tab



Log File
Enter the full path and name of the file in which you want data and events to be logged.

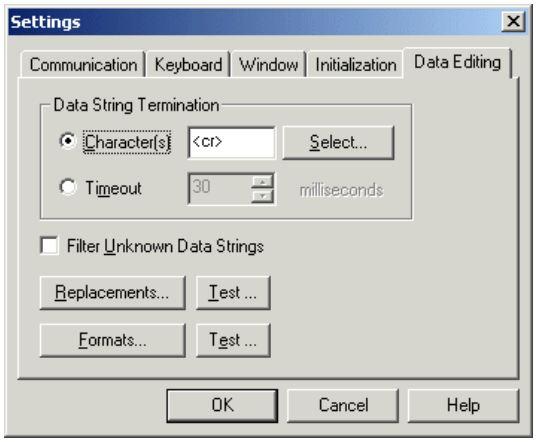
Enable Logging
If you check this box WLinq will log data and events to the log file specified.

A log file can be used for troubleshooting especially tricky and intermittent problems. The logging can be turned on to record data and events over long periods of time and hopefully capturing some data or garbage causing problems in the setup.

Sample log data:

```
2007-03-08 11:13:30.214 RAW INPUT DATA: 42 30 38 37 33 31 30 35 35 34 31
2007-03-08 11:13:30.230 Locked Window(s) Not Active: Input String = B0873105541
2007-03-08 11:13:30.230 Locked Window(s) Not Active: Current Window's Title =
wlinqlog.txt - SciTE
2007-03-08 11:13:31.668 RAW INPUT DATA: 42 30 38 37 33 31 30 35 35 34 31
2007-03-08 11:13:31.668 Locked Window(s) Not Active: Input String = B0873105541
2007-03-08 11:13:31.668 Locked Window(s) Not Active: Current Window's Title =
wlinqlog.txt - SciTE
2007-03-08 11:16:15.114 Connected: Program Info = FreeFloat WLinq 3.17
2007-03-08 11:16:15.114 Connected: Active Profile = Default
```

Data Editing – tab



Note! In the lite version of WLinq there are no data editing formats. The *Formats* button and the corresponding *Test* button does not appear on this dialog tab.

On this tab you specify settings for string replacement and data editing.

Data String Termination
Here you specify if you want a certain character or characters to terminate the data input string (*Character(s)*) or if the data input string should be regarded as terminated after a certain period of time (*Timeout*).

> *Character(s) (default)*
> Specifies the character that WLinq uses to find the end of a data input string. The default setting is <cr> (ASCII value 13). CR is an abbreviation of *Carriage Return*. The data string terminator can be set to any character value. Note that the terminator must be the same in WLinq and in the hardware you connect to the serial port. In setup manuals to barcode scanners this setting is often called *post-amble* or *suffix*. To change *Data String Terminator* you enter one or more characters (use mnemonics for control characters) in the input box or you can click the *Select* button to display the dialog box *Select Data String Terminator* which lets you choose a single character. Please note that data string terminator is removed from incoming data. Example: The string 123<CR><LF> is received on the serial port and the data string terminator is set to <CR><LF>. WLinq will trim away the <CR><LF> from the end of the string before any further data processing takes place.
>
> **Note!** It is possible to specify several characters/strings as a data string terminator. For example: "<cr><lf>","<etx>". In these cases you enter the string manually in the box instead of selecting it from the list. You should use quotes around each data string terminator.
>
> *Timeout*
> Specifies the period of time after which WLinq thinks the data input string is terminated. When this option is selected the equipment you connect to WLinq should not have any suffix set. **Note!** If you specify a too high value (approx. 1000 ms) the user will think the reading time is slow. If you specify a too low value (< 30 ms) there's a risk the data input string will be divided into two or more parts.

Filter Unknown Data Strings
If this box is checked, incoming data strings, that aren't matched by any data editing format, are filtered. This is nice when you want to have control and only let strings that match data editing formats to generate key presses.

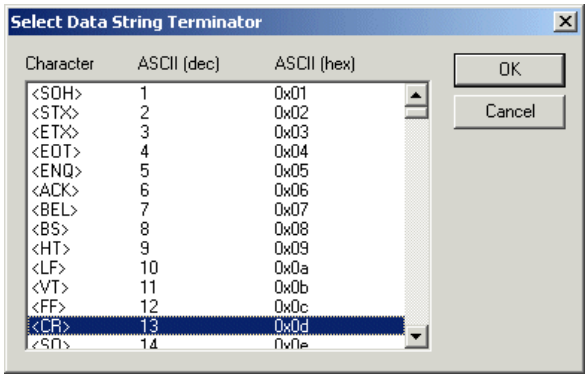
Replacements
Displays the dialog box *Input Data Replacements*.

Test (to the right of the *Replacements* button)
Displays the dialog box *Test Input Data Replacements*.

Formats
Displays the dialog box *Data Editing Formats*.

Test (to the right of the *Formats* button)
Displays the dialog box *Test Data Editing Formats*.

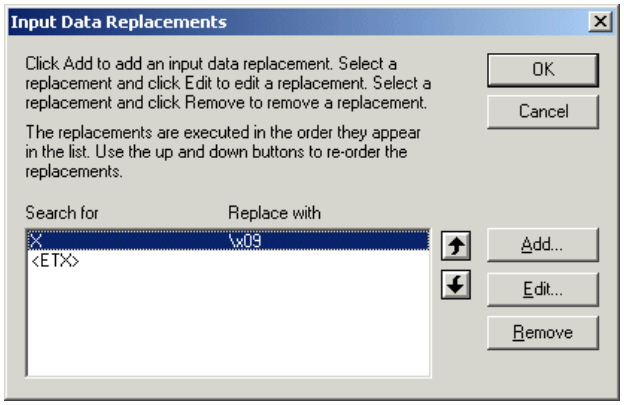
Select Data String Terminator – dialog box



Here you can select the character that should be used as a data string terminator. Select the value in the list and then click on the *OK* button. If you don't want to change the data string terminator, click on *Cancel*. For more information about the data string terminator, please see *Data Editing – tab*.

Note that if your data string terminator consist of more than one character you need to enter in manually, you cannot use this dialog for terminators of more than one character.

Input Data Replacements – dialog box


Input Data Replacements
Click Add to add an input data replacement. Select a replacement and click Edit to edit a replacement. Select a replacement and click Remove to remove a replacement.
The replacements are executed in the order they appear in the list. Use the up and down buttons to re-order the replacements.
OK
Cancel
Search for
Replace with
\x09
<ETX>
Add...
Edit...
Remove

This dialog box displays the currently defined string replacements.

The strings WLinq scan for in incoming data are in the column *Search for* in the list. When such a string is found, it is replaced with its corresponding replacement string (displayed in the column *Replace with*).

You can change the order in which the string replacements are processed by selecting a replacement in the list and then move it up or down by clicking on the arrow buttons.

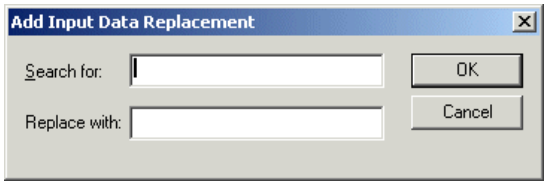
Add
Displays the dialog box *Add Input Data Replacement*.

Edit
Displays the dialog box *Edit Input Data Replacement*.

Remove
Removes the selected string replacement.

Click on *OK* to confirm any changes you've made or click on *Cancel* to cancel any changes.

Add Input Data Replacement – dialog box



This dialog is used for adding a string replacement.

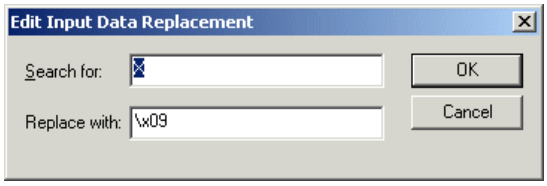
Search for
Specify the string you want WLinq to search for. The *Search for* box can't be left empty.

Replace with
Specify the string you want WLinq to replace search string with.

Click on OK if you want to confirm the new string replacement.

Tip! If you leave the *Replace with* box empty, the string replacement will work as a filter. Both substrings and single characters may be filtered in this way.

Edit Input Data Replacement – dialog box



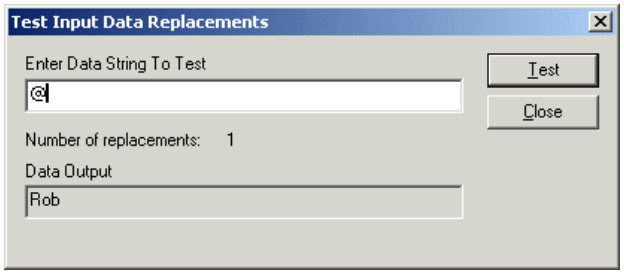
This dialog box is used for changing an existing string replacement.

Search for
The string you want WLinq to scan for.

Replace with
The string you want WLinq to replace with.

Click on *OK* to confirm any changes you've made or click on *Cancel* to cancel any changes.

Test Input Data Replacements – dialog box



In this dialog box you can test the currently defined string replacements. In the example above a string replacement has been defined. The string replacement searches for the character @ and replaces it with the string Rob.

Test
Click on this button after you have entered the string to test.

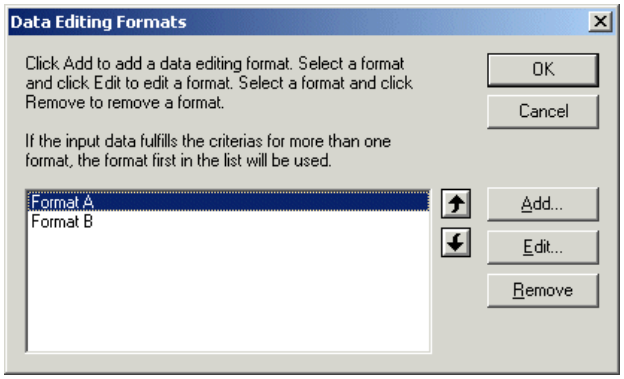
Enter Data String To Test
In this box you should enter the string you want to test.

Number of replacements
Displays the number of replacements done.

Data Output
Displays the result after all defined string replacements has been processed.

Click on the *Close* button when you're finished testing.

Data Editing Formats – dialog box


Data Editing Formats
Click Add to add a data editing format. Select a format and click Edit to edit a format. Select a format and click Remove to remove a format.
If the input data fulfills the criterias for more than one format, the format first in the list will be used.
Format A
Format B
OK
Cancel
Add...
Edit...
Remove

In this dialog box there's a list over the currently defined data editing formats. You can add, edit, delete, and change the order in which the data editing formats are processed.

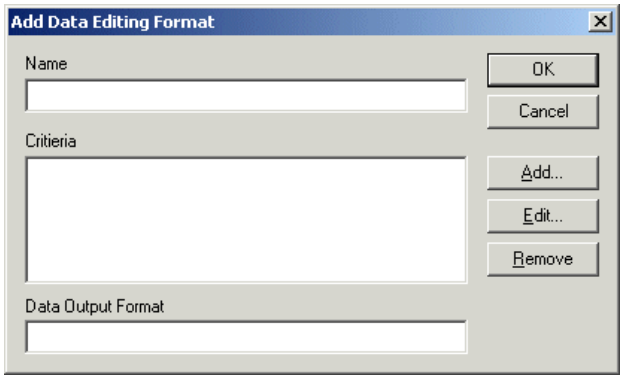
Add
Display the dialog box *Add Data Editing Format*.

Edit
Display the dialog box *Edit Data Editing Format*.

Remove
Removes the selected data editing format.

Click on *OK* to confirm any changes you've made or click on *Cancel* to cancel any changes.

Add Data Editing Formats – dialog box



This dialog is used for defining a new data editing format.

Name
Here you specify the name of the data editing format.

Criteria
This list shows the criterias of the data editing format.

Data Output Format
The data editing formats output format. There are more information about this further down in this topic.

Add
Displays the dialog box *Add Criteria*.

Edit
Displays the dialog box *Edit Criteria*.

Remove
Removes the selected criteria.

Click on *OK* to confirm any changes you've made or click on *Cancel* to cancel any changes.

What is a data editing format?

A data editing format has a name, one or more criterias, and one data output format. WLinq uses the data editing formats to extract, remove and add information to the incoming data strings.

A data editing format must have at least one criteria. There are three types of criterias: length criterias, expression criterias, and EAN128 criterias.

> A length criteria consists of a minimum length and a maximum length. A length criteria is met when the input data string's length is longer than or equal the given minimum length AND shorter than or equal to the given maximum length.
>
> An expression criteria consist of a start position and an expression. The start position specifies the position in the input data string where WLinq will try to match the expression. The expression consists of the characters that should be present in the input data string from the start position and forward. You can use the wild card character ? to represent any one character. The wild card character * matches zero or more characters. Example: start position = 3, expression = 3?5 will match the strings 12345, 123x5 och AB3Z5 but the strings 12346, 12A45, and 1235 won't be matched.
>
> An EAN128 critera consists of two lists of field identifiers. One list specifies the fields that must be present in the data string and the other list specifies the fields that must not be

present.

A data editing format has an output format. The output format specifies the information that should be generated when all the format's criterias are met. The output format is made up of constant strings and/or string functions that extracts parts of the input data string. In the examples below, the input data string is 12345ABCDE.

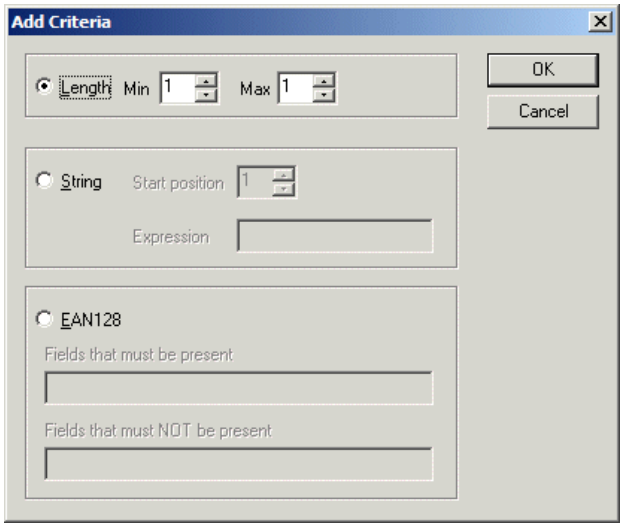
Example	Description	Result
"ABC"	Constant string with ordinary characters	ABC
Left(3)	Extracts the specified number of characters from the beginning of the string.	123
Right(3)	Extract the specified number of characters from the end of the string.	CDE
Mid(3, 2)	The first digit specifies the character position and the second specifies the number of characters. Extracts the specified number of characters starting at the specified position.	34
Mid("A", 5)	This is another way of specifying the starting position. The substring's position in the input data string is used as the starting position for the Mid function.	ABCDE
Mid(6)	If only the start position is specified, extracts all character from the start position to the end of the string.	ABCDE
SubStr("23", "CD")	Scans for the first string and extracts all characters up to the second string. If the first string isn't found, the result is an empty string.	45AB
EAN128Field("02")	Extracts the data of the field 02 from an EAN128 code. If the field doesn't exist, the expression results in an empty string.	
Delay(1000)	This is how you insert a delay in the output data format. The time is specified in milliseconds.	
Sleep(1000)	Sleep is an alias of Delay.	
Input()	Represents the entire input data string.	12345ABCDE
Date("%Y-%m-%d")	Inserts the current date in the specified format. The supported date and time formats: **%a** Weekday (abbrevieated) **%A** Weekday **%b** Name of month ((abbrevieated) **%B** Name of month **%d** Day in month (01 – 31)	2001-01-23

	%H Hours in 24 hour format (00 – 23) **%I** Hours in 12 hour format (01 – 12) **%j** Day in year (001 – 366) **%m** Month as number (01 – 12) **%M** Minute (00 – 59) **%p** A.M./P.M.-indicator for 12 hour format **%S** Seconds (00 – 59) **%U** Week number with Sunday as the first day of week (00 – 53) **%w** Weekday as decimal number (0 – 6; Sunday is 0) **%W** Week number with Monday as the first day of week (00 – 53) **%y** Year without century (00 – 99) **%Y** Year with century (1999, 2000, ...) **%%** The percent sign Other characters, for example .-/, can be used.	
Time("%H.%M")	Inserts the current time in the specified format. Time is just a synonym for Date. It is the contents of the format string that affects the result.	13.20
"X" + Left(2) + Right(2)	Different expressions can be combined.	X12DE
"<cr><tab>"	Control characters are specified within <>. See *Characters* for the codes that can be used. They are in the column Abbreviation.	[ENTER][TAB] (The Enter key is pressed and then the Tab key)
"\x09"	You can specify control characters and character codes by entering the \x prefix followed by their hexadecimal code (two digits).	[TAB]
"\d013"	You can specify control characters and character codes by entering the \d prefix followed by their decimal code (three digits).	[ENTER]
Input() + "<tab>1<cr>"	The entire input data string, the Tab key, a one, the Enter key.	12345ABCDE[TAB]1[ENTER]
Reboot()	Closes all programs and restarts the pc. If a program has a document that hasn't been saved that program will display a question whether you want to save the document or not. This stops the reboot process until you answer the question.	
RebootForced()	Closes all programs and restarts the pc. When this function is used no unsaved	

	documents will be saved. All programs are shut down in a very abrupt way. Use this function only if you are aware of the consequences!	
RunApp("notepad.exe")	Starts the specified program. To be sure that the started application's window is activated, use RunApp(), WaitForWindow(), and SetFocus() in the given order.	
SetFocus("*Notepad")	Activates the first window that has a caption that matches the window caption pattern. Please see Lock Output Window for a description on the pattern format.	
WaitForWindow("*Notepad", 3000)	Waits until a window with a matching caption is found. 3000 is a timeout (in milliseconds) that specifies how long WLinq will wait for the window to appear. Zero means no timeout, that is WLinq will wait until the window appears.	
WaitForAppExit(30000)	Waits until the program started with RunApp() is exited. 30000 means that WLinq will give up waiting after 30 seconds. Zero means no timeout, that is WLinq will wait until the program is exited.	
OpenPort()	Opens the serial port.	
ClosePort()	Closes the serial port. ClosePort() and OpenPort() is needed when a data output format starts a program that uses the same serial port as WLinq does. You can then close the serial port, start the program, wait until it exits, and then open the serial port again.	
SendData("abc")	Sends the characters abc to the device connected to the serial port.	
SetProfile("Other")	Activates another profile. Useful if you want to be able to select dynamically between two or more profiles.	
Call("extapp.exe", "c:\temp\input.txt", "c:\temp\output.txt")	Outputs the current input string to the file input.txt, then starts the external application extapp.exe. The external application reads the data from input.txt, processess it and outputs the result to output.txt. Then the external application exits. WLinq	

	reads the result from output.txt which becomes the value of the function call. **Note!** The first argument may refer to an executable file or and executable file with an argument. For example: "rubyw script.rb".	

Add Criteria – dialog box



In this dialog box you define a new criteria. Note that you can define only one length criteria per data editing format. If you try to define more than one, an error message will be displayed when you click *OK*.

Length
Choose this to define a length criteria.

String
Choose this to define an expression criteria.

Min
The minimum length of the input data string.

Max
The maximum length of the input data string.

Start position
The position in the input data string where the scan for the string expression starts.

Expression
The string expression that should be matched. Control character mnemonics and <\xNN> format can be used.

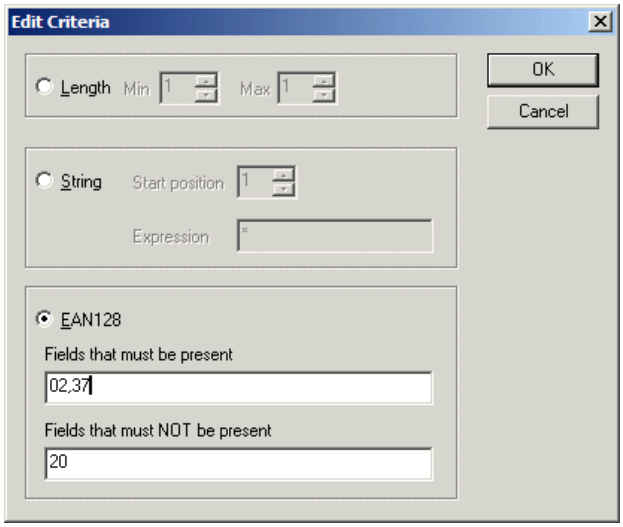
EAN128
Choose this to define a EAN128 criteria.

Fields that must be present
Specifies the EAN128 fields that must be present in the data string for this criteria to match. Enter a single field identifier or a list of field identifiers separated by a comma. For example: 20,37

Fields that must NOT be present
Specifies the fields that if they are present, will make the critera not to match the data string. The same rules apply as for *Fields that must be present*.

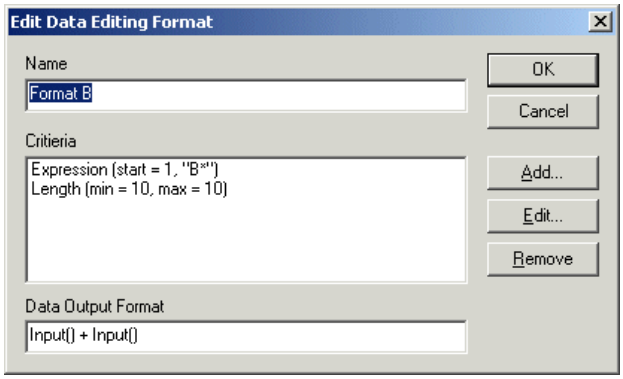
Click on *OK* to confirm any changes you've made or click on *Cancel* to cancel any changes.

Edit Criteria – dialog box



This dialog box is used when changing an existing data editing format criteria. See Add Criteria for more information.

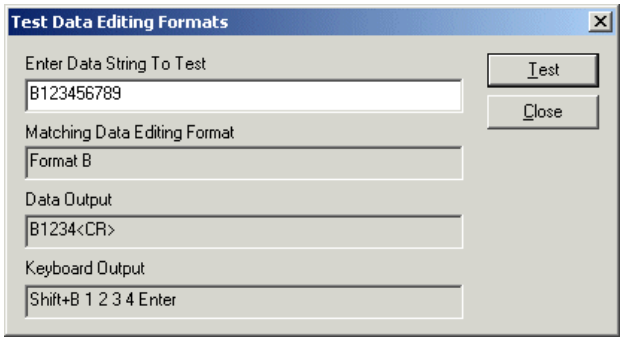
Edit Data Editing Formats – dialog box



This dialog box is used for changing a data editing format. You can change the name of the data editing format, specify its criterias and the ouput data format.

For more information, see *Add Data Editing Format*.

Test Data Editing Formats – dialog box



In this dialog you can test the data editing format that are currently defined. In the example display above, a data editing format has been defined. It has a length criteria with its minimum length set to 10 and its maximum length also set to 10. It also has an expression criteria where the starting position is set to 1 (one) and the expression set to B*.

Test
Click on this button when you have entered the string you would like to test with the currently defined formats.

Enter Data String To Test
Here you type in the string you would like to test.

Matching Data Editing Format
The name of the data editing format for which the criterias were met.

Data Output
In this box the resulting output is displayed. The data output string for the format in the example above is `Left( 5 ) + "<cr>"`.

Keyboard Ouput
Displays the key simulations WLinq would have used for the string.

Click on the *Close* button when you're finished testing.

The Taskbar

When you start WLinq, an icon is added in the system tray of the taskbar. Here's what it might look like:

When there is no data activity the icon is grey ( ) and when there is data activity it flashes in green. When data is sent, with for example SendData(), it flashes in yellow. When a hardware pin event is fired, the icon flashes blue.

If the serial port is unavailable (or inaccessible for other reasons) the icon becomes red ( ).

You can display the main window by clicking on the icon. This can be useful if you have clicked the *Hide* button in the main window or if you have activated the automatic hide function.

Characters

In different places in the program where you can specify any kind of data string you can use an alternative way of writing characters. You can write \xNN or \dNNN to specify a character's ASCII value instead of writing the character itself. \xNN is hexadecimal and \dNNN is decimal notation. For example: The ASCII value of the character A is 65 decimal and 41 hexadecimal. "A", "\x41", and "\d065" are alternative ways of specifying the A character. Please not that you have to use exactly two digits for hexadecimal notation and exactly three digits for decimal notation.

Control characters (ASCII value between 0 and 31) can be specified in yet another way. They may be specified by writing its abbreviated name between angle brackets. For example: The ASCII value of the Escape character is 27 decimal and 1B hexadecimal. The abbreviation is ESC. The character can thus be written in the following ways: "\d027", "\x1b" och "<ESC>", or "<esc>". The table below shows how to specify control character by using their abbreviated names.

Decimal	Hexadecimal	Abbreviation
0	00	<nul>
1	01	<soh>
2	02	<stx>
3	03	<etx>
4	04	<eot>
5	05	<enq>
6	06	<ack>
7	07	<bel>
8	08	<bs>
9	09	<ht> or <tab>
10	0a	<lf>
11	0b	<vt>
12	0c	<ff>
13	0d	<cr>
14	0e	<so>
15	0f	<si>
16	10	<dle>
17	11	<xon>
18	12	<dc2>
19	13	<xoff>
20	14	<dc4>
21	15	<nak>
22	16	<syn>
23	17	<etb>
24	18	<can>
25	19	
26	1a	<sub>
27	1b	<esc>
28	1c	<fs>
29	1d	<gs>
30	1e	<rs>
31	1f	<us>

Send data directly to an application

In some cases a more direct communication between WLinq and the receiving program is needed. In WLinq 2.10 and later there is an alternative way of sending data to a program. Instead of simulating key presses, the data strings can be sent with the message WM_COPYDATA to the receiving program.

The advantages for sending data in this way are:

- In one test the processing speed was increased by 40 to 70 times compared to sending via key presses.
- The receiving program does not need to have an input field where the data string is received.
- Data is not sent to the active window. Only to the program that has registered themselves as receivers of data from WLinq.
- More than one program can receive the same data simultaneously. This makes it possible to have a monitoring program that eases trouble shooting.

A disadvantage is of course that the receiving program has to be customized to receive data from WLinq.

There is no setting in WLinq that tells it to send data via the WM_COPYDATA message. Instead WLinq switches to use WM_COPYDATA as soon as a program registers itself as a receiver. This is how it works:

WLinq is started and it registers the Windows message "WLinq32.Subscribe". At this time WLinq will send data as key presses.

The receiving program is started. It also registers the message "WLinq32.Subscribe" and then looks up the handle to WLinq's window. Then the program send the message "WLinq32.Subscribe" together with the program's window handle to WLinq's window.

WLinq now registers the program as a subscriber of WM_COPYDATA messages. WLinq switches to sending data via WM_COPYDATA instead of simulating key presses.

When WLinq receives a data string on the serial port, the usual string processing occurs (string replacement, data editing and so on), but instead of simulating key presses the resulting data string is sent via the WM_COPYDATA message to the programs that has registered as subscribers. It is worth mentioning that it is not possible to send keys like HOME or END via WM_COPYDATA. Only characters with ASCII-values between 1 and 255 can be sent.

Sample code

All code samples are in the programming language C++.

The following sample shows how to register the Subscribe message:

```
UINT m_uWLinq32_Subscribe =
  RegisterWindowMessage( _T( "WLinq32.Subscribe" ) );
```

The code below shows how to find the handle to WLinq's window:

```
HWND gwndWLinq = NULL;

BOOL CALLBACK EnumWindowsProc( HWND hwnd, LPARAM lParam )
{
  gwndWLinq = NULL;

  char sz[512];
  ::GetWindowText( hwnd, sz, sizeof( sz ) );

  if( NULL != strstr( sz, "FreeFloat WLinq") )
  {
    gwndWLinq = hwnd;
    // Break the enumeration process
    return FALSE;
  }

  return TRUE;
}

BOOL FindWLinqWindow()
{
    EnumWindows( EnumWindowsProc, 0 );
    if( NULL != gwndWLinq )
    {
      return TRUE;
    }
    else
    {
      return FALSE;
    }
}
```

The method OnCopyData below is a handler for the WM_COPYDATA message. It receives a COPYDATASTRUCT structure pointer. The member lpData of that struct contains the data string from WLinq. lpData is a string pointer. The receiving program must call the function ReplyMessage as soon as the data string has been saved in a variable because WLinq hangs until either ReplyMessage is called or the processing of the WM_COPYDATA message is finished. If ReplyMessage is not called, a data string sent from the receiving program to WLinq will be delayed.

Please note that the COPYDATASTRUCT structure should be considered invalid after the call to ReplyMessage.

```
BOOL CWLinqTestDlg::OnCopyData( CWnd* pWnd, COPYDATASTRUCT* pCopyDataStr
{
  CString strCode = (const char*)(pCopyDataStruct->lpData);

  // Send the beep command to the scanner
  SendToWLinq( "B1\r" );

  // Release WLinq from SendMessage
  ReplyMessage( TRUE );

  // Add the code to the list box
  m_lstCodeList.AddString( strCode );

  return CDialog::OnCopyData( pWnd, pCopyDataStruct );
}
```

In the sample above, the message WM_COPYDATA is received from WLinq. The data string from WLinq is saved in the strCode string object. The string "B1\r" is then sent to WLinq (that later sends it to the serial port). The string "B1\r" is a Beep command for a certain barcode reader. ReplyMessage is called so WLinq will be released and enable WLinq to process the string "B1\r". The data string is then added to a list box. This represents a lengthy operation like a database query, file access or similar.

The source code for a sample program using this technique (a Microsoft Visual C++ 6.0 project) can be supplied to you without charge.

Note! From version 3.9 and later there are two more messages. Unsubscribe and SubscribeExclusively. They are used in the same way as Subscribe. SubscribeExclusively makes the client program sending the message the sole subscriber. Unsubscribe unsubscribes any subscription regardless of whether Subscribe or SubscribeExclusively was used to start the subscription.

Note! From version 3.10 there are yet two more messages, KeyboardEvents and NoKeyboardEvents. They control whether WLinq will send data via keyboard events. If WLinq is tightly integrated with an application via the WM_COPYDATA message and the application temporarily unsubscribes, the application probably don't want WLinq to switch over to the method of sending data via keyboard messages. In this situation, send the NoKeyboardEvents to WLinq (the full global name of the message is "WLinq32.NoKeyboardEvents").

Key Codes

This table contains most of the key codes there is in Windows.

The column *Mapped ASCII* is the ASCII value mapped to the key in the default setup of WLinq. Those can be used in an output format to generate the key. For example: "\x83" generates the HOME key.

Symbolic Constant Name	Value (hex)	Mapped ASCII	Mouse or Keyboard Equivalent
VK_LBUTTON	01	01	Left Mouse Button
VK_RBUTTON	02	02	Right Mouse button
VK_CANCEL	03	03	Control-break
VK_MBUTTON	04	04	Middle Mouse button (three button mouse)
	07		Undefined
VK_BACK	08	08	BACKSPACE
VK_TAB	09	09	TAB
	0A–0B		Reserved
VK_CLEAR	0C	0C	CLEAR
VK_RETURN	0D	0D	ENTER
VK_RETURN (Extended)	0D	BC	ENTER (numeric keypad)
	0E–0F		Undefined
VK_SHIFT	10	10	SHIFT
VK_CONTROL	11	11	CTRL
VK_MENU	12	12	ALT
VK_PAUSE	13	13	PAUSE
VK_CAPITAL	14	14	CAPS LOCK
VK_KANA	15		IME Kana mode
VK_HANGUL	15		IME Hangul mode
	16		Undefined
VK_JUNJA	17		IME Junja mode
VK_FINAL	18		IME final mode
VK_HANJA	19		IME Hanja mode
VK_KANJI	19		IME Kanji mode
	1A		Undefined
VK_ESCAPE	1B	1B	ESC
VK_CONVERT	1C		IME convert
VK_NONCONVERT	1D		IME nonconvert
VK_ACCEPT	1E		IME accept
VK_MODECHANGE	1F		IME mode change request
VK_SPACE	20	20	SPACEBAR
VK_PRIOR	21	80	PAGE UP
VK_NEXT	22	81	PAGE DOWN
VK_END	23	82	END
VK_HOME	24	83	HOME
VK_LEFT	25	84	LEFT ARROW
VK_UP	26	85	UP ARROW

VK_RIGHT	27	86	RIGHT ARROW
VK_DOWN	28	87	DOWN ARROW
VK_SELECT	29	88	SELECT
VK_PRINT	2A	89	PRINT
VK_EXECUTE	2B	8A	EXECUTE
VK_SNAPSHOT	2C	8B	PRINT SCREEN
VK_INSERT	2D	8C	INS
VK_DELETE	2E	7F	DEL
VK_HELP	2F	8E	HELP
	30		0
	31		1
	32		2
	33		3
	34		4
	35		5
	36		6
	37		7
	38		8
	39		9
	3A–40		Undefined
	41		A
	42		B
	43		C
	44		D
	45		E
	46		F
	47		G
	48		H
	49		I
	4A		J
	4B		K
	4C		L
	4D		M
	4E		N
	4F		O
	50		P
	51		Q
	52		R
	53		S
	54		T
	55		U
	56		V
	57		W
	58		X
	59		Y
	5A		Z
VK_LWIN	5B	8F	Left Windows key (Microsoft® Natural® keyboard)

VK_RWIN	5C	90	Right Windows key (Natural keyboard)
VK_APPS	5D	91	Applications (Natural keyboard)
	5E		Reserved
VK_NUMPAD0	60	92	0 (numeric keypad)
VK_NUMPAD1	61	93	1 (numeric keypad)
VK_NUMPAD2	62	94	2 (numeric keypad)
VK_NUMPAD3	63	95	3 (numeric keypad)
VK_NUMPAD4	64	96	4 (numeric keypad)
VK_NUMPAD5	65	97	5 (numeric keypad)
VK_NUMPAD6	66	98	6 (numeric keypad)
VK_NUMPAD7	67	99	7 (numeric keypad)
VK_NUMPAD8	68	9A	8 (numeric keypad)
VK_NUMPAD9	69	9B	9 (numeric keypad)
VK_MULTIPLY	6A	9C	* (numeric keypad)
VK_ADD	6B	9D	+ (numeric keypad)
VK_SEPARATOR	6C	9E	Separator (numeric keypad)
VK_SUBTRACT	6D	9F	- (numeric keypad)
VK_DECIMAL	6E	A0	, or . (numeric keypad)
VK_DIVIDE	6F	A1	/ (numeric keypad)
VK_F1	70	A2	F1
VK_F2	71	A3	F2
VK_F3	72	A4	F3
VK_F4	73	A5	F4
VK_F5	74	A6	F5
VK_F6	75	A7	F6
VK_F7	76	A8	F7
VK_F8	77	A9	F8
VK_F9	78	AA	F9
VK_F10	79	AB	F10
VK_F11	7A	AC	F11
VK_F12	7B	AD	F12
VK_F13	7C	AE	F13
VK_F14	7D	AF	F14
VK_F15	7E	B0	F15
VK_F16	7F	B1	F16
VK_F17	80	B2	F17
VK_F18	81	B3	F18
VK_F19	82	B4	F19
VK_F20	83	B5	F20
VK_F21	84	B6	F21
VK_F22	85	B7	F22
VK_F23	86	B8	F23
VK_F24	87	B9	F24
	88–8F		Not assigned
VK_NUMLOCK	90	BA	NUM LOCK
VK_SCROLL	91	BB	SCROLL LOCK
	92–96		OEM specific

	97–9F	Not assigned
VK_LSHIFT	A0	Left SHIFT
VK_RSHIFT	A1	Right SHIFT
VK_LCONTROL	A2	Left CONTROL
VK_RCONTROL	A3	Right CONTROL
VK_LMENU	A4	Left MENU (ALT)
VK_RMENU	A5	Right MENU (ALT)
	B8-B9	Reserved
VK_ATTN	F6	Attn
VK_CRSEL	F7	CrSel
VK_EXSEL	F8	ExSel
VK_EREOF	F9	Erase EOF
VK_PLAY	FA	Play
VK_ZOOM	FB	Zoom
VK_PA1	FD	PA1
VK_OEM_CLEAR	FE	Clear

Contact Us

If you have any questions, problems, or if you find any errors in the software or the documentation, please contact us.

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